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June 12, 1972

RAILWAY AGE

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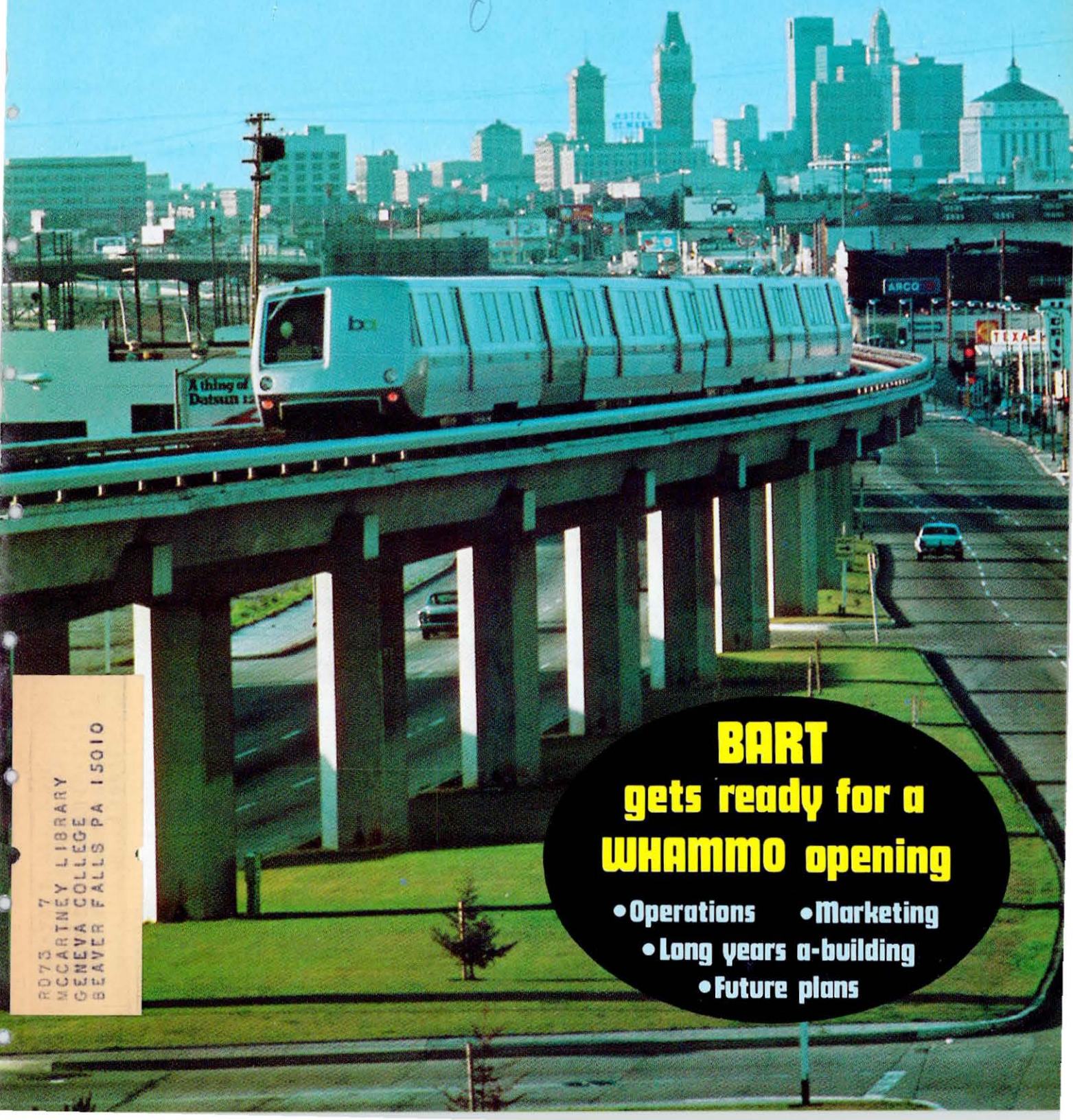

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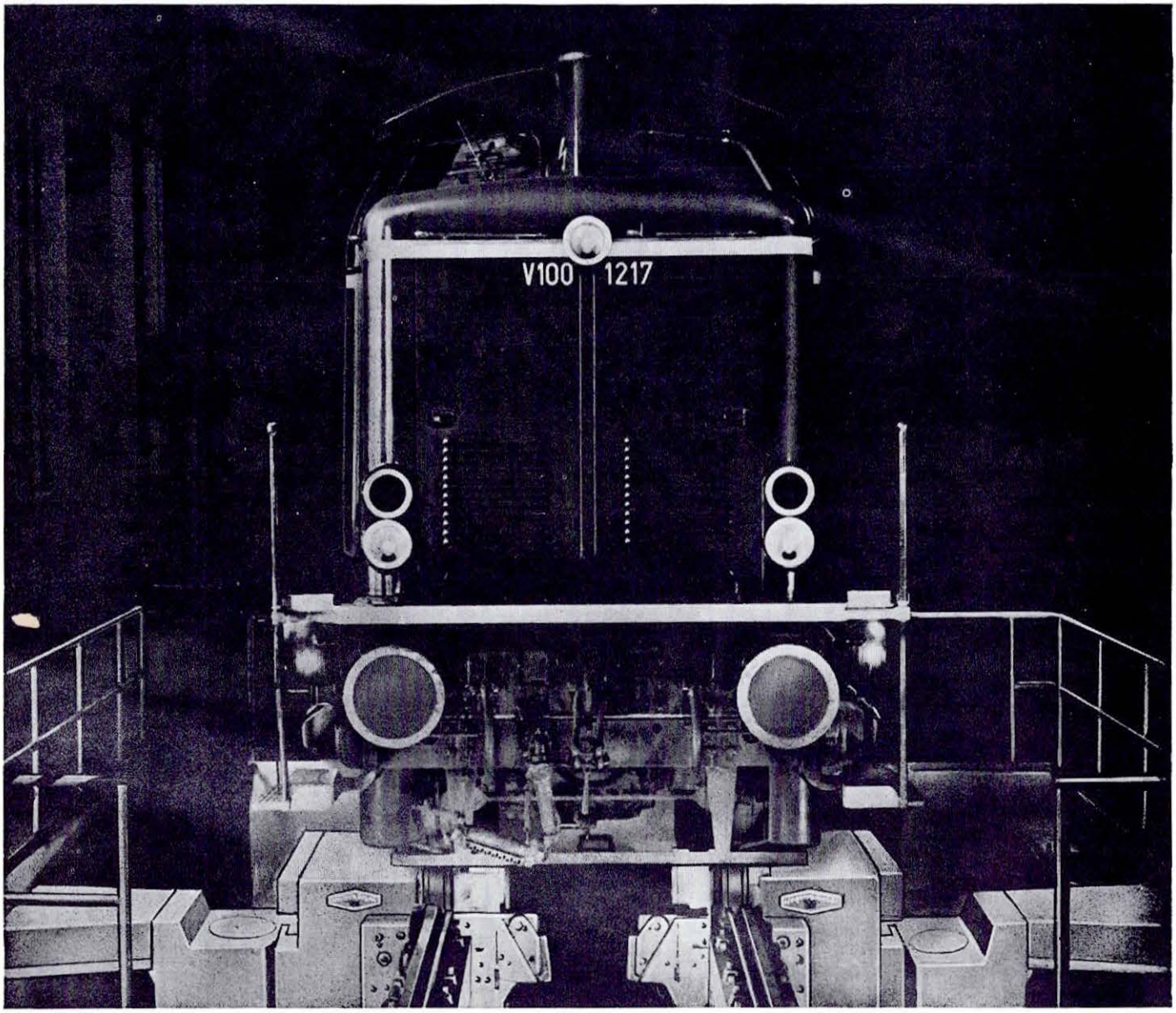

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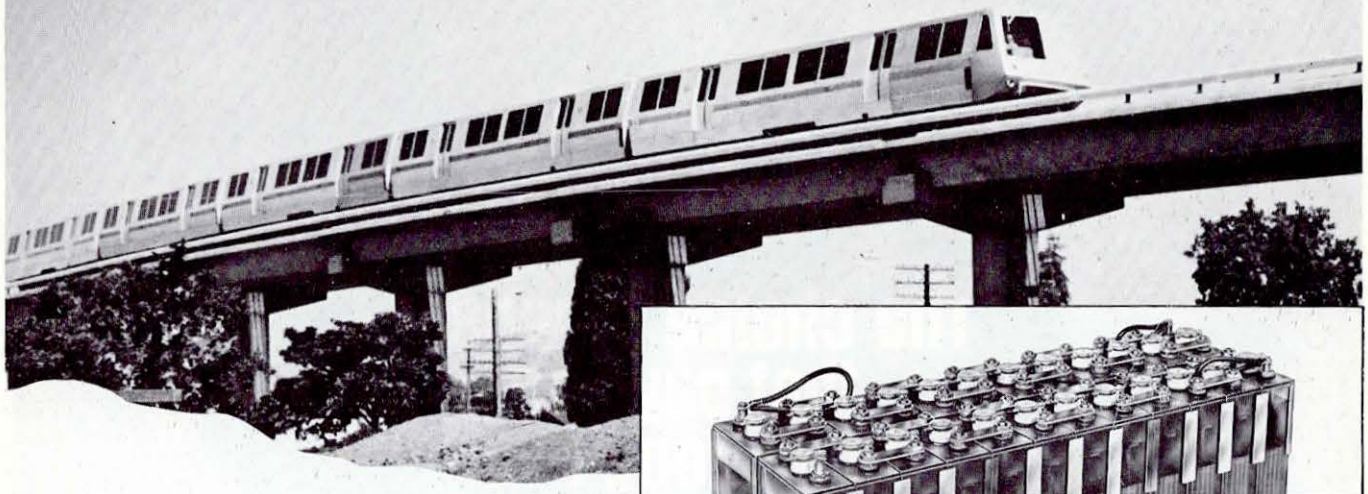

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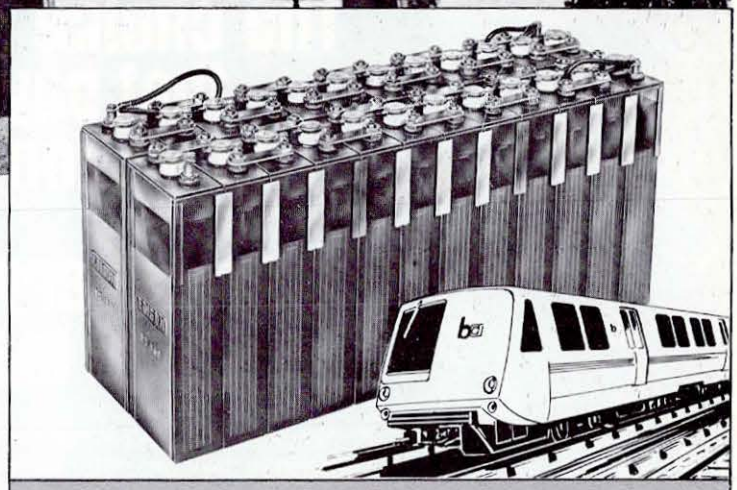

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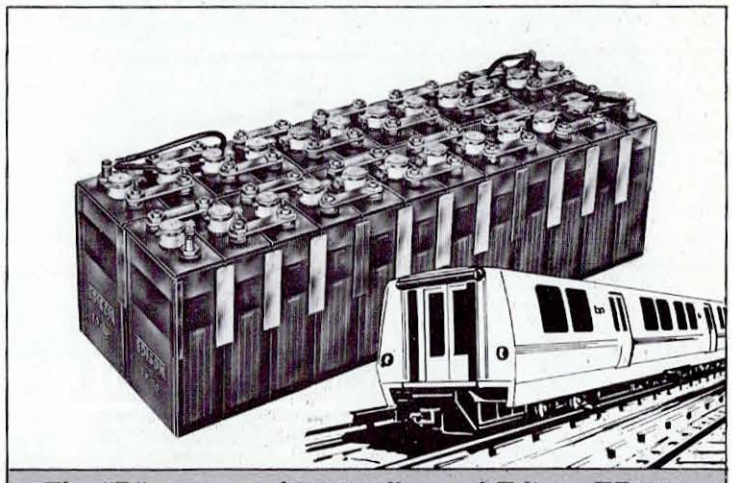

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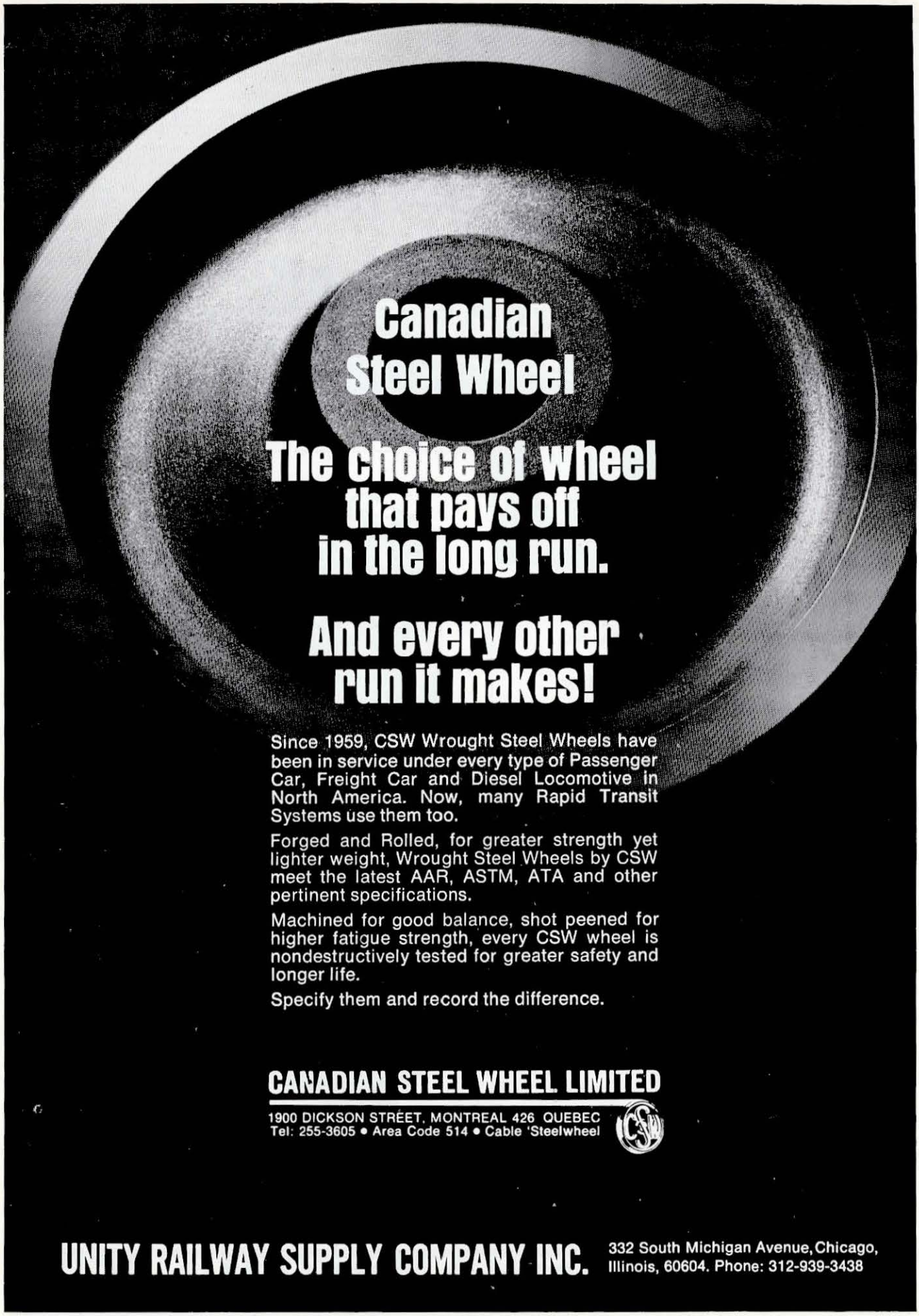
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June 12, 1972 • Vol. 172 No. 11

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Inside

LUTHER MILLER

BILL STOKES DELIVERS

Joe Asher, Railway Age's transit critic-at-large for nigh onto a decade, is not known as a man who is easily impressed. In every silver lining, Joe can spot a cloud. To every press release he applies a kind of built-in hogwash-detector. In view of all this, Joe's report on a recent trip to San Francisco—where he made his umpteenth visit to gather material for this issue's cover story—is all the more interesting.

"I confess I was feeling pretty jaded when I headed out to San Francisco to do the BART story," memos Joe. "After all, I wrote my first BART story nine years ago, before the first hole was dug; and I have written countless BART stories in between. The building of BART was getting to be like a TV daytime serial that goes on and on and never ends.

"I didn't stay jaded for long. First, they really are close to opening—this time. You remember ideas for cars and stations that began as rough sketches on the back of an envelope. Now here they are, the real things, staring back at you.

"Second, General Manager Bill Stokes has delivered on his promises. Stokes said this would be the world's showcase for everything ultra-modern in transit. He has produced just that. To be sure, there are criticisms to make (I've got a few of my own). But on balance, they are not crucial. Whether you are talking aesthetics, technology, amenities, or over-all system concepts, this system represents a dividing for the transit industry: everything built prior will be dated B.B. (before BART); everything built after will be A.B. (after BART)."

"IT'S DISNEYLAND!"

Joe continues: "I went on a test run with a bunch of San Francisco Chronicle people. You remember all the years they badmouthed BART editorially? Their tune is very different now. All I heard was oohs and aahs, and one cry, 'It's Disneyland!' Frankly, Disneyland and its monorail are flashy plastic bonbons by comparison.

"The cars ride like a dream—and this run was done on manual, not automatic control (the automatic goes in later). We seemed to be coasting at about 35 mph when one Chronicle type called out, 'Hey, take it up to 80.' I had my head half in the cab and looked at the speedometer. We were doing 82 at the time.

"All I can say is—nobody can stay jaded about transit after seeing BART. A few hard-line scoffers, maybe. My advice to them: Eat your hearts out. It works."

THE WORLD VIEW

Railway Age's fourth Rail-Transit Seminar Tour of Europe has just ended. A photo report on what two dozen transit experts saw on the tour—in Munich, Vienna, Budapest, Leningrad, Hamburg, Brussels and Paris—will appear in the July 10 issue.

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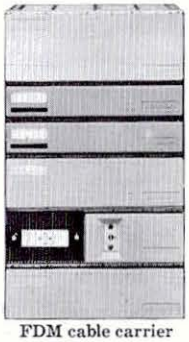
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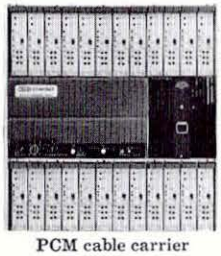
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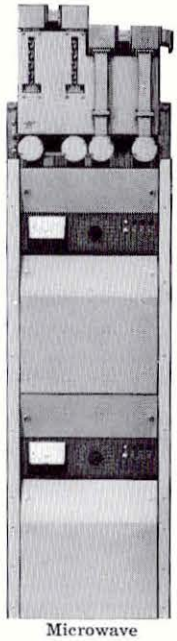
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RAILWAY AGE

June 12, 1972

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	GO Transit orders 30 new coaches	p. 12
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This issue's cover photograph was supplied by Duane L. Cronk & Associates of Angwin, Calif., public relations consultants to the joint venture firm of Parsons Brinckerhoff-Tudor-Bechtel.

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Short and Significant

PC TO LEASE 1,500 FREIGHT CARS

Penn Central has announced it will acquire 1,000 50-ft, 70-ton, general purpose box cars and 500 4,700-cu-ft-capacity covered hopper cars for hauling bulk commodities. Fruehauf will build the box cars and lease them to PC; delivery is scheduled for the last quarter of 1972 and the first quarter of 1973. Pullman will build the covered hopper cars (400 gravity-discharge units and 100 pneumatic-discharge units). They will be leased to PC by North American Car. Deliveries are to start this month.

CANADA IN MARKET FOR 2,000 GRAIN CARS

The Canadian Wheat Board will soon request bids from three builders—Hawker Siddeley Canada Ltd., National Steel Car division of Dominion Foundries & Steel Ltd., and Marine Industries Ltd.—for 2,000 hopper cars estimated to cost $42 million. The order will help to alleviate present grain-car shortages and will also facilitate the winning of new export-grain contracts.

EL, CNJ TO GET NEW COACHES, LOCOMOTIVES

The Commuter Operating Agency (COA) of the New Jersey Department of Transportation has authorized the purchase of nine locomotives from General Electric (at a cost of $3,795,000) and 50 passenger coaches from Pullman-Standard (to cost $11,716,000) to expand suburban rail service on the Erie Lackawanna and the New Jersey Central. The necessary funds will come from a 1968 Transportation Bond Issue. COA has also authorized the purchase of 11 rail diesel cars from Jersey Central at a cost of $350,000. Two of the cars will be refurbished at a cost of $168,000; a decision on refurbishing the nine other cars will await results of tests of a new engine now being developed.

UP PLANS BIG OUTLAY FOR BETTERMENTS

The Union Pacific has announced it will spend $34.4 million in 1972 for rail renewal and other roadway improvements. The program includes replacement of 251.25 miles of mainline rail with 133-lb continuous welded rail; 31.87 miles of branch-line and other secondary-track rail with relay 131- and 133-lb rail; surfacing and aligning of 1,200 miles of track, and installation of 792,000 crossties.

MEXICO BORROWS FOR RAILROAD PROJECT

The World Bank has approved a loan equal to $75 million to the National of Mexico and Nacional Financiera S.A. to assist financing a project for modernizing railway equipment and improving operations. Over-all cost of the project is estimated at $203 million. The WB loan will cover about two-thirds of the estimated $130 million foreign exchange cost of the project. It will finance freight cars, various types of facilities (including track-maintenance equipment), and consultants' services.

CHICAGO GETS $25.2-MILLION GRANT FROM UMTA

UMTA has given $25.2 million to the West Suburban Transit District of Chicago for purchase of 21 locomotives and 94 commuter cars belonging to Burlington Northern. The grant also includes funds for purchase of 25 new commuter cars. Another $12.6 million will go to the transit district for the acquisition and purchase project from the State of Illinois.

CN MAY BUY SIMULATOR TO TRAIN ENGINEMEN

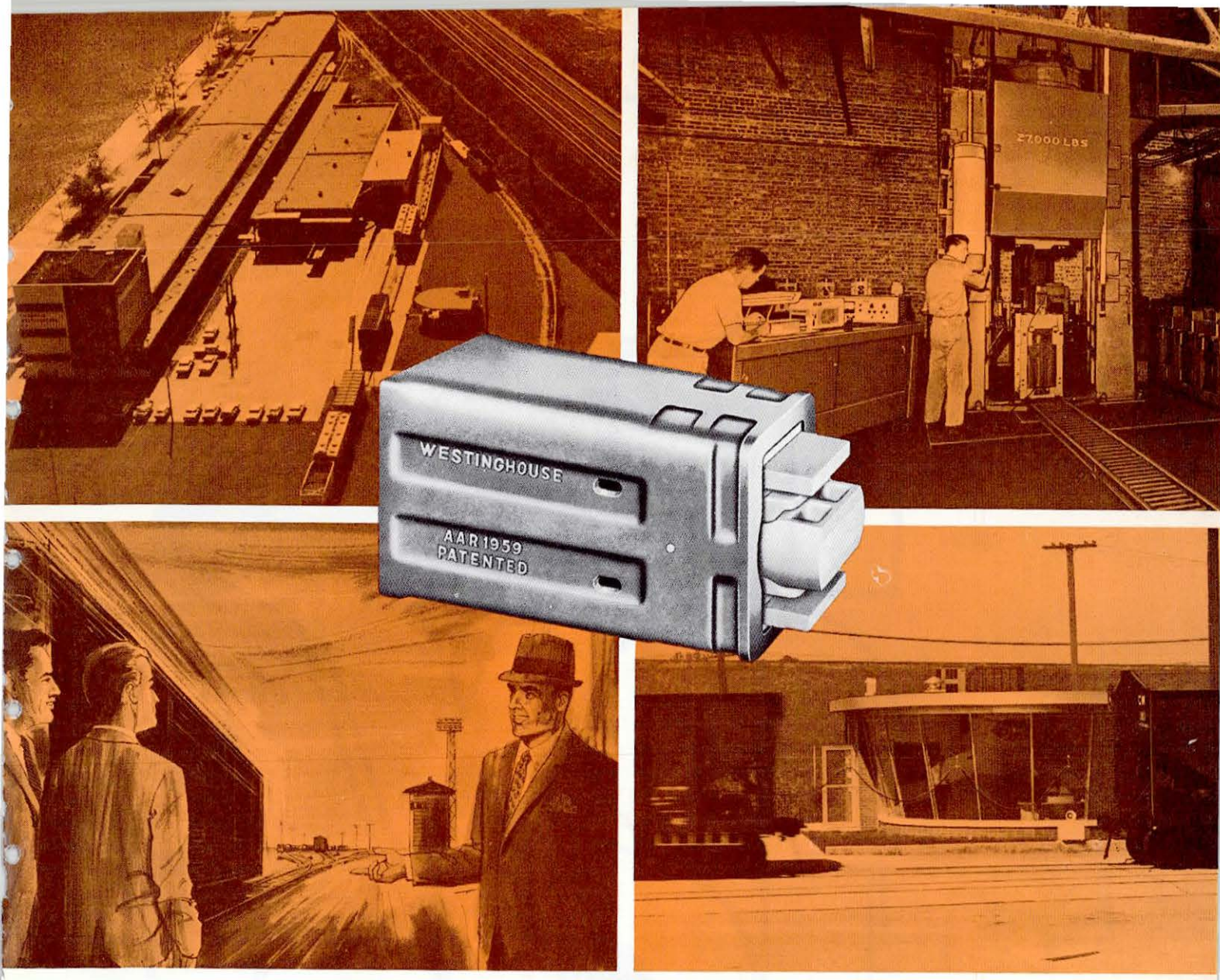
A training center for locomotive engineers, the first of its kind in Canada, will be established by Canadian National at the former Canadian Forces Base in Gimli, Man., 60 miles north of Winnipeg. The first training class is scheduled to arrive at the center this month. In preparation for the 1973 term, CN is studying the possibility of buying a locomotive simulator, already in use on several U.S. railroads, which would be the first of its kind in Canada. Trainees, to be selected from employees already having considerable train and yard operation experience, will spend from 7 to 12 weeks at the center.

RAILS DROP WISCONSIN SURCHARGE PLAN

With repeal of Wisconsin's crew-consist law, railroads operating in the state have dropped plans to impose a $10.30-per-car surcharge on all cars loaded or unloaded in the state, and the proposal has been removed from the agenda of the Executive Committee-Western Railroad Traffic Association. Repeal of the Wisconsin law became effective May 20 (RA, May 8, p. 8; March 27, p. 11).

. . .AND THE COFFEE STAYS IN THE CUP

Rock Island may be out of the long-haul passenger business—but it's still possible to enjoy "the great tradition of American railroad dining" with RI. That would be at Track One, a new railroad-owned and -operated restaurant—made up of a diner and lounge from the "Golden State Limited"—permanently parked, appropriately enough, on Track 1 at Chicago's LaSalle Street Station. Track One serves lunch and dinner Monday through Friday and will be available for private parties on weekends.



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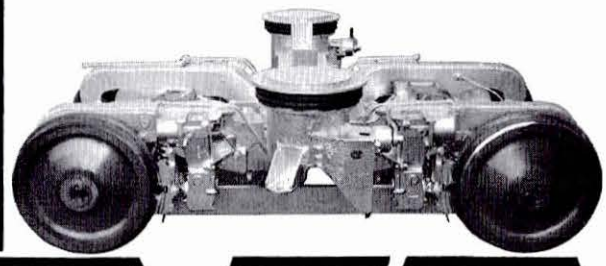

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LV authorized to run CNJ line

The Lehigh Valley has been authorized by ICC to take over permanently all Pennsylvania operations of the Jersey Central which it has operated under a temporary service order since April 1 (RA, May 8, p. 12). The Commission also found that CNJ had not justified a series of tariff revisions that would establish new routes for its interchanges with Erie Lackawanna, Delaware & Hudson, Reading, and Lehigh Valley.

Simultaneously with its authorization of LV takeover, ICC also permitted CNJ to cease operation of the 116 route miles in Pennsylvania and cleared the complete abandonment of 24 miles of branch lines in New Jersey. The Commission turned down the application for abandonment of 20 miles of CNJ main line through New Jersey to Phillipsburg; earlier the railroad itself had withdrawn application for another 64 miles of main and branch lines from Raritan to Lake Junction where an interchange with EL was established a few months ago.

It has also been ordered that CNJ negotiate to assure continued through service via Phillipsburg and Allentown, Pa., in conjunction with both LV and Reading, while LV is directed to improve interchanges at Wilkes Barre, Pa., and Allentown to expedite bridge traffic between D&H and Reading. ICC spelled out its reasons for all these steps:

—To enable CNJ and LV to obtain the revenues needed for continued performance of the services they propose to undertake;

—To upgrade interchanges so as to prevent "harmful erosion" of routes involving Reading and Western Maryland;

—To assure essential local services on CNJ, LV, Reading and WM while maintaining established routes for preblocked, run-through trains;

—To maintain competition between LV and EL east of Buffalo "without undue advantage to either competitor."

The EL/CNJ interchange at Lake Junction has constituted a special problem since it moved the transfer point 90 miles east of its traditional site, effectively eliminating LV participation in what had been a substantial freight movement over the same lines under CNJ operation. ICC has established a figure of 40,000 carloads annually through Lake Junction for normal division of revenues between CNJ and EL. Any revenues produced by Lake Junction interchanges in excess of 40,000 cars would go into a trust fund which an independent trustee would distribute 80% to CNJ and 20% to LV.

"The purpose of the trust fund is to permit CNJ, EL and D&H to have the use of the Lake Junction route substantially to the extent they contend it would be used," said ICC, "and yet deter them from diverting, to the jeopardy of LV, Reading and WM, substantial traffic which CNJ contends would be left on its former lines in Pennsylvania." Stated another way, continued an ICC spokesman, "it is to prevent destructive competition, but not interfere with the shippers' right to route."

RR rate of return was 2.48% in 1971

Last year's rate of return on the railroad industry's net investment was 2.48%, compared with 1.74% in 1970, according to the AAR. It was the fifth consecutive year in which the railroad rate of return was under 3%, the AAR said.

Ordinary net income last year totaled $350 million, 53% above the $229 million reported in 1970, but otherwise the lowest in 25 years. Net railway operating income jumped to $698 million, compared with the 1970 total of $487 million, the lowest since 1938. (Ordinary net income, the AAR explained, differs from operating income in that it is calculated after income from non-railroad operations is added and interest on debt and other fixed charges are deducted.)

Operating revenues in 1971, boosted by higher freight rates, hit an all-time high of $12.7 billion. That was 5.9% higher than the 1970 figure, when the total was $12 billion. Operating expenses, taxes and rents rose 4.3%, from $11.5 billion to $12 billion.

Of the nation's 68 Class I railroads, 17 reported deficits in 1971. Fourteen of the deficit-reporting roads were in the east and three were in the west. The South reported no roads with deficits.

ITOFCA loads No. 500,000 at Corwith

ITOFCA, reported to be the nation's largest consolidator-coordinator of piggyback trailers aboard flat cars, wedded its 500,000th trailer to a flat car at the end of May. On hand for the ceremony at Santa Fe's Corwith Yard in Chicago were: Left to right, A.A. Moser, assistant to vice president-sales, Santa Fe; C. Buford, president, Trailer Train; L.B. Harmon, president, ITOFCA; J.S. Reed, president, Santa Fe; and J.C. Allen, Jr., vice president and manager of operations, ITOFCA. ITOFCA—for Industrial Trailer on Flat Car Association—is a non-profit shipper association, with a membership of 168 industrial firms. Formed in 1959, it now ships an average of 80,000 trailers a year.

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I cordially urge you to attend and also suggest you plan to have appropriate members of your management people take advantage of our four Seminars. Please let me have your attendance requests, preferably two weeks or more in advance of the Seminars.

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Circle 8 on coupon page 45

Top Harriman safety award won by SP

Winners of the E.H. Harriman Awards for outstanding employee safety records in 1971 were announced last week in Washington. Twelve railroads will receive gold, silver and bronze medals at a June 14 luncheon in the capital. One of the twelve, along with three other railroads, will get certificates of commendation for the greatest employee safety improvement in 1971 over 1970. The awards are to be presented by Federal Railroad Administrator John W. Ingram, a member of the selection committee.

Gold medal winner among the largest railroads is Southern Pacific Lines. Other gold medal winners in their respective categories are St. Louis Southwestern, Florida East Coast and Kentucky & Indiana Terminal.

Here is a list of the winners:

Group A (Class I line-haul railroads working 20 million man-hours or more a year): Southern Pacific (including Northwestern Pacific), gold; Southern Railway System (including Alabama Great Southern; Central of Georgia; Cincinnati, New Orleans & Texas Pacific; Georgia Southern & Florida), silver; Penn Central System (including Pittsburgh & Lake Erie), bronze; Rock Island, commendation.

Group B (Class I line-haul railroads reporting 5 million to 20 million man-hours a year): St. Louis Southwestern, gold; Denver & Rio Grande Western, silver; Elgin, Joliet & Eastern, bronze; Western Pacific, commendation.

Group C (Class I line-haul railroads working less than 5 million man-hours a year): Florida East Coast, gold; Lake Superior & Ishpeming, silver; Bangor & Aroostook, bronze; FEC, commendation.

Group ST (Class I switching and terminal companies): Kentucky & Indiana Terminal, gold; Union Railroad (Pennsylvania), silver; Indiana Harbor Belt, bronze; Lakefront Dock & Terminal, commendation.

C&NW adds Commoditrains

Chicago & North Western is taking a good idea—commoditrain—and making it better. C&NW began using the single-commodity, shuttle-train concept last year to haul sand and gravel in Illinois; now there is another sand/gravel commoditrain operating in South Dakota and one moving cement between Mason City, Iowa, and Burnsville, Minn.

In the newest application of the commoditrain operation, North Western is scheduling five round trips per week to haul more than 45,000 tons of cement from two production plants in Mason City to distribution terminals at Burnsville. Operations now are on a test basis, but will be continued on a regular basis through the construction season if the test results are positive for both railroad and customers. Like the original commoditrain operation, the Mason City/Burnsville move involved agreements between C&NW and the Brotherhood of Locomotive Engineers and the United Transportation Union covering crew size, the kind of work to be performed and the seniority districts to be covered.

GO Transit orders 30 new coaches

Purchase of 30 new rail commuter cars for GO Transit at a cost of $6 million has been approved by the Government of Ontario. Hawker Siddeley Canada Ltd. will supply the cars, which will be identical to those the company has supplied earlier for the government-sponsored commuter service (see cut). Canadian National operates the service east and west of Toronto along the north shore of Lake Ontario.

Ten of the new cars will be used to relieve rush-hour congestion on the Lakeshore service. The remainder will be used for a new service, beginning in mid-1973, between Toronto and Georgetown, about 30 miles northwest of the city.

Thirty-two coaches, eight remote controlled cab coaches and nine self-propelled diesel cars were provided by Hawker Siddeley starting in 1967 for the initial service. Fourteen more coaches were delivered in 1968.

Like their predecessors, the new cars will be 85 feet long and constructed largely of aluminum.

BN asks for air forwarding rights

Burlington Northern will try to go where Southern Pacific and Santa Fe have gone, and where Missouri Pacific also wants to go—into the air freight forwarding business. BN has formed a subsidiary, Burlington Northern Air Freight Inc., and now has its application pending before the CAB for domestic and international air forwarder operating authorizations. N.M. Lorentzsen, executive vice president of BN, is chairman of the new company; its president and executive vice president both previously held executive positions with Airborne Freight Corp., described as the second largest air freight forwarder in the country.

RI is moving personal autos

Rock Island is moving into the business of cross-country rail transportation of personal and company-owned automobiles—with a service, in conjunction with Southern Pacific, between Chicago and Los Angeles and San Francisco. Similar service has been provided between Chicago and eastern cities by Chesapeake & Ohio/Baltimore & Ohio, and RI will be sharing use of an "Auto-Trans" center with C&O/B&O at Oak Park, just west of Chicago. Automobiles will be shipped on multilevel cars, in freight service.

Rails vital in module housing

Producers of manufactured housing who want to expand markets without decentralizing production ought to be thinking rail. As Chicago & North Western's John F. Battel put it to the National Association of Building Manufacturers, "Moving pre-manufactured housing by rail has been proved practical from mechanical and transportation standpoints—and the economics are good, too."

Battel, general market manager for C&NW, noted that North Western itself participated in a multi-road move of 82 core modules shipped TOFC style this year, and had other moves of up to 48 townhouse modules on standard flat cars last year. Some of these movements involved distances of up to 2,600 miles.

Lines on Labor

GUS WELTY

THE "GREAT EXPERIMENT"...

As Larry Provo put it in a letter to all employees, "Today we bought ourselves a railroad." And so, on June 1, the 124-year-old Chicago & North Western became the brand new Chicago & North Western Transportation Co.—the nation's largest employee-owned enterprise and the only major railroad to be owned by the people who work there. On the surface, however, nothing much has changed. North Western management and personnel remain the same. North Western objectives programs remain in effect—programs which, it should be noted, helped produce a small profit in 1970, a bigger one last year. So where will the change really be? Hopefully, it will be in the intangible attitudes that turn into tangible rewards.

. . .MAY CREATE A NEW KIND OF RAILROAD

Provo, president of both the old and the new North Western, calls the employee-purchase "a major milestone in the history of the railroad industry, one that we believe will witness not only a new era in labor/management relations and employee productivity, but also one in which employees will. . .participate directly in the future of the company." Only about 1,000 of North Western's 13,000 employees have made stock investments in the new company. But, Provo points out, "All employees now have new and strong incentives to operate our railroad efficiently and without waste—because we are all very much aware that we have our own money on the line or are working side by side with employees who do."

BUT WILL OPPORTUNITY REALLY BE SEIZED?

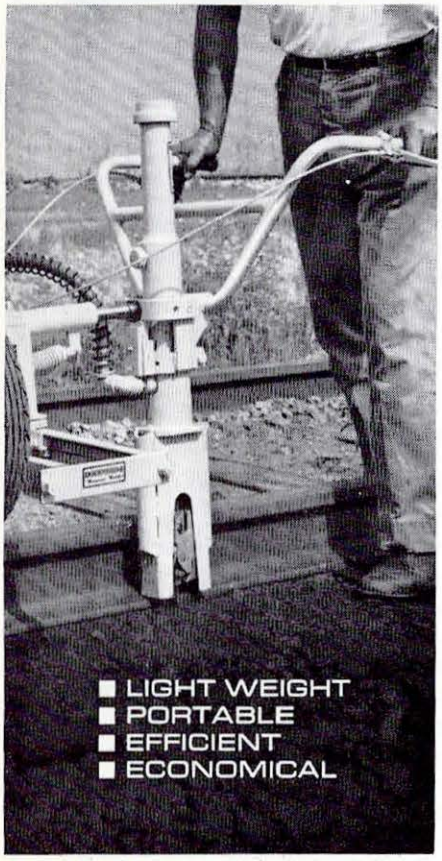
Despite its profits of the past two years (and indications of an even bigger net in 1972), North Western bears the tag of a "marginal" property. Its efforts to find a major partner in the western-road merger movement have been unsuccessful. And, while C&NW was the cornerstone of Northwest Industries, it eventually became an unwanted part of the conglomerate.

On the positive side, however, North Western has seemed to be a company in which the employees and their organizations really are interested in the kind of cooperation which can build strength into the enterprise. Commoditrain agreements are a good example—with the operating unions showing a willingness to negotiate business-building arrangements that involve sharp departures from work-rules so long held inviolable. North Western's labor organizations aren't rolling over and playing dead—but they are demonstrating that they have the ability to adapt, to change, to innovate.

Employee ownership isn't going to change everything overnight, and nobody should expect that it will. North Western and UTU are still locked in a long-standing crew-consist dispute. A new round of industry-wide wage/rules negotiations is coming. And, it would be naive to expect national union leadership to look with favor on C&NW labor-agreement initiatives with the flavor of too much change, too soon.

At the same time, it would be hard to argue with the basic goal set for the new C&NW. "In the briefest of terms," says Larry Provo, "it is our objective to make the North Western a great railroad in service to its customers—and a great railroad for all of us who work for it."

NORDBERG® HYDRAULIC SPIKE PULLERS...



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Circle 9 on coupon page 45

Transpo: Almost a no-show for rails

While Transpo 72 closed June 4 with another spectacular (and fatal) air crash, the cause of aviation was obviously not set back. Whether the cause of railroading and rail rapid transit had been furthered by nine days of big-time, trade-fair promotion at Washington's Dulles Airport was the subject of post mortems. Some had predicted Transpo would be a railroad disaster from the beginning.

With the nearest railroad miles away, it was not easy to have actual railroad equipment on display—and only the DOT/Amtrak Turbo, Rohr's first production transit car for Bay Area Rapid Transit, a 1900 Vienna street car and Southern's 1830 "Best Friend of Charleston" replica made it.

The Federal Railroad Administration finally carried the ball for conventional railroading with its "Roundhouse '72" geodesic dome where photographs and models told the story. AAR had months ago elected not to participate.

FRA presented AAR films, incorporated an Amtrak display, and had modular exhibits which described FRA research, the Alaska Railroad, and advanced steel wheel/steel rail technology. Goals of the exhibit, said FRA, were to demonstrate that U.S. rail transportation is a viable and essential ingredient in an economical and well balanced modern transportation system; that improvements can be made and early progress is encouraging; and that the Federal government and the industry are aware of the needs and are doing something about them.

Boeing displayed a full-scale mock-up of its carpeted, deep-seated State-of-the-Art (Soac) Transit Car which a Chicago reporter observed could be taken apart by determined vandals "in less time that it would take to go from the Loop to Englewood." Carlos Villarreal, administrator of the Urban Mass Transportation Administration which is financing the Soacs, said that after September two such vehicles nearing completion at St. Louis Car would be demonstrating "to frustrated big-city rail commuters" in New York, Boston, Philadelphia, Chicago and Cleveland that they could "read, relax and escape unpleasant environmental factors" on their daily transit trips. While the Transpo mock-up is a so-called low-density version which seats 64, Boeing's higher capacity design is supposed to seat only 72.

Just prior to Transpo's opening, Transportation Secretary Volpe announced the award of a three-year, $10.5 million contract to Boeing's Vertol Division for systems management of UMTA's Urban Rapid Rail Vehicle and Systems Program. This will include

PRT SYSTEMS at Dulles include the Bendix-Dashaveyor installation that uses rubber tires on a concrete guideway. UMTA is making large research expenditures on PRT concept.

Soac Car testing and the ACT (Advanced Concept Train) program to provide a totally fresh approach to transit car design. Said Volpe: "We are hopeful that aerospace techniques, such as air frame construction and component modularity, can now be applied to transit cars." Villarreal expects ACT to be translated into two cars which are scheduled for completion in November 1973.

Villarreal revealed that the Transpo site is to join Morgantown, W.Va., as a locale for testing what is apparently the real darling of UMTA's current transit research, the "People Mover." The four guided, mini-vehicle systems, which operated with varying degrees of success during Transpo, will remain under test in the corner of Dulles Airport for the next year. UMTA's $6 million in grants has produced four concepts: Suspended monorail by Rohr, air levitation on a concrete guideway by Otis, rubber tires on an aluminum guideway by Ford, and rubber tires on a concrete guideway by Dashaveyor.

UMTA, said Villarreal, is expending $43 million to produce the 2¼-mile, three-station, five-vehicle People Mover on the University of West Virginia campus at Morgantown. He explained that capital-intensive Personal Rapid Transit promises low operating costs and predicted that, if People Mover systems "make technical and economic sense", cities might actually be ordering them in two or three years.

That could be right after the next Transpo—they are thinking of another one for 1974.

Fred Houser

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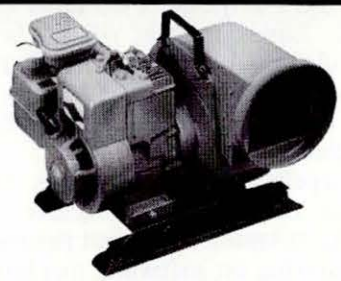

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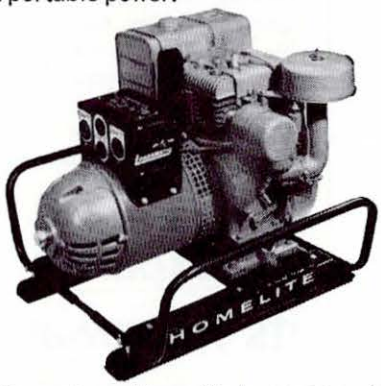

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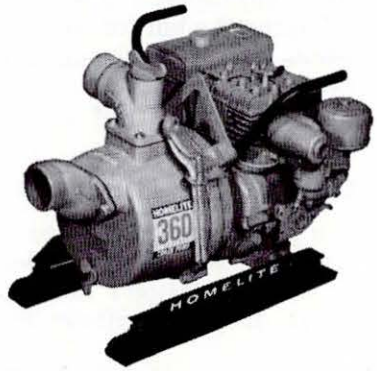

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Watching Washington

REID BEDDOW

APT DEAL IN THE MAKING?

British Rail's energetic and aggressive drive to sell its Advanced Passenger Train to the U.S. is gaining momentum. Transpo '72, and the very large BR exhibit, including a full-scale mockup of the APT, closed on June 4; and the next day BR representatives were in Philadelphia briefing Penn Central executives on the APT. The meeting was at PC's request. Two days earlier, Kenneth L. Lawson, chief of the Science and Technology Division of the Federal Railroad Administration's Office of Policy and Plans, left Washington leading an eight-man team to inspect British Rail's Technical Center at Derby, England.

A few weeks ago this column reported that DOT might acquire one or two APT's under a demonstration project. Negotiations between DOT and British Rail, it has been learned, are now centering on software, not hardware. BR has tendered a proposal to DOT whereby DOT would acquire BR R&D and systems knowhow, not vehicles, for $18.5 million. In effect, BR is offering a 1964-to-1979 investment of $168 million in high-speed rail research to the U.S. Where a DOT/BR agreement, expected this summer, would leave FRA's Pueblo, Colo., high-speed ground transportation center is a good question. Treasury Secretary-designate George Schultz, say British sources, is more enthusiastic about buying knowhow from Derby than in footing the bill for equivalent U.S. research.

BR also wants to sell U.S. railroads and suppliers APT vehicles and systems. Private U.S. companies would place their research teams in Derby as part of any contract.

FUNDING PUBLIC TRANSPORT IN MARYLAND

In amplification of an item published in the "Moving People" section of Railway Age May 8—describing the Maryland Department of Transportation's funding approach—Michael F. Canning, director of public affairs for the Maryland DOT, writes:

"The two cent increase in the state gasoline tax and the increase from $500 million to $950 million as the limit for consolidated transportation bonds are measures that will increase the Department's financial capability to accomplish its balanced transportation program in the State.

"The Department's Transportation Trust Fund of $950 million does not last until 1977, but is a continuing fund fed by all transportation-related revenues and used to finance programs in all transportation modes."

NO CAR SUPPLY PROBLEMS SEEN—YET

AAR Car Service officials are pleased with the car-supply situation. They report a surplus of 40-ft narrow-door box cars and covered hopper cars for the harvest now beginning. This will meet shipper demands in Texas and Oklahoma now and in Kansas, Nebraska and the Dakotas at the end of June. A crunch could come in the fall, however, if the U.S. sells a large amount of grain to Russia and Poland.

Amtrak ups ante for Penn Central

Under a renegotiated agreement with Amtrak—still subject to court approval—Penn Central will receive a flat $26 million for the period May 1, 1971-June 30, 1973 as compensation for avoidable expenses not covered in the basic operating contract. This will replace a 5% over-ride which was provided originally, and which Penn Central trustees have contended was insufficient.

The $26 million is arrived at this way:

—$8,873,898 already paid by Amtrak to PC under the 5% over-ride agreement.

—$4,126,102 payable to Penn Central on July 1.

—$1,000,000 payable monthly, beginning June 14.

The total additional amount to be received by Penn Central during the period of the contract—beginning with the Amtrak takeover on May 1, 1971, and extending through June 30, 1973—is estimated to be between $8 million and $10 million.

It was also disclosed that Amtrak has agreed to assume liability for passengers, and for grade-crossing accidents. Previously, Amtrak has paid Penn Central a 4% over-ride for this liability. Penn Central will continue to assume liability for its equipment and its employees, in return for which Amtrak will compensate the carrier at the rate of 3.67 cents per passenger-train-mile. A similar offer is being made to Amtrak's other member-carriers.

BN expands its microwave

Between now and mid-1974, Burlington Northern will be adding 1,817 miles to its microwave communications system, at a cost of $10.2 million. Collins Radio of Dallas holds the contract to engineer, furnish and install the system, which will extend from Mendota, Ill., near Chicago, to Spokane. The Collins contract also covers expansion of an existing microwave link between Mendota and Chicago to provide for additional traffic.

First-phase construction, Mendota to St. Paul, is to be completed by Dec. 1. Microwave will then go in from St. Paul to Fargo, N.D., completion early 1973; Fargo to Havre, Mont., late 1973; and Havre to Spokane, mid-1974. When the 93-station installation is completed, BN's microwave system coverage will add up to almost 4,275 miles.

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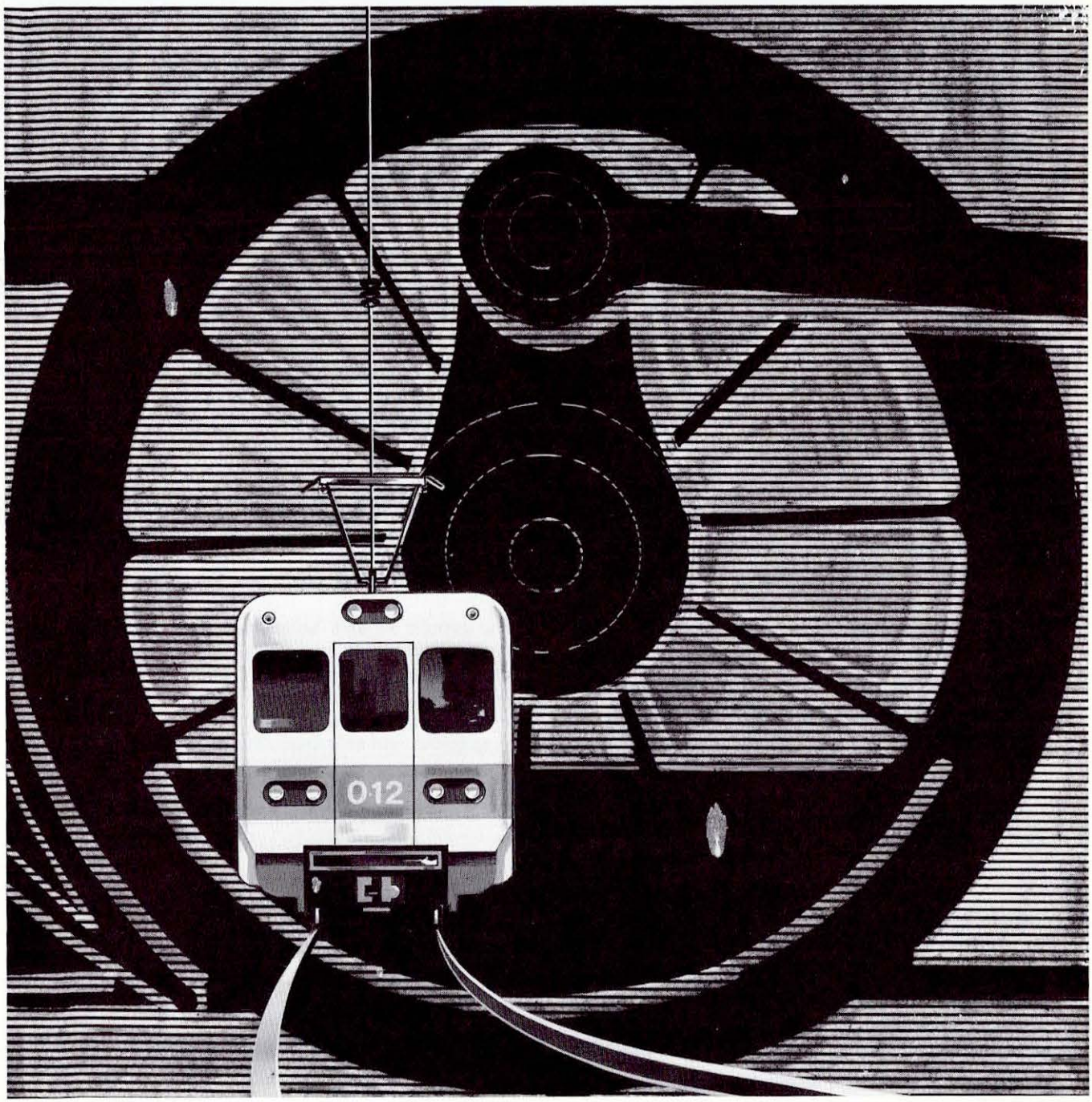

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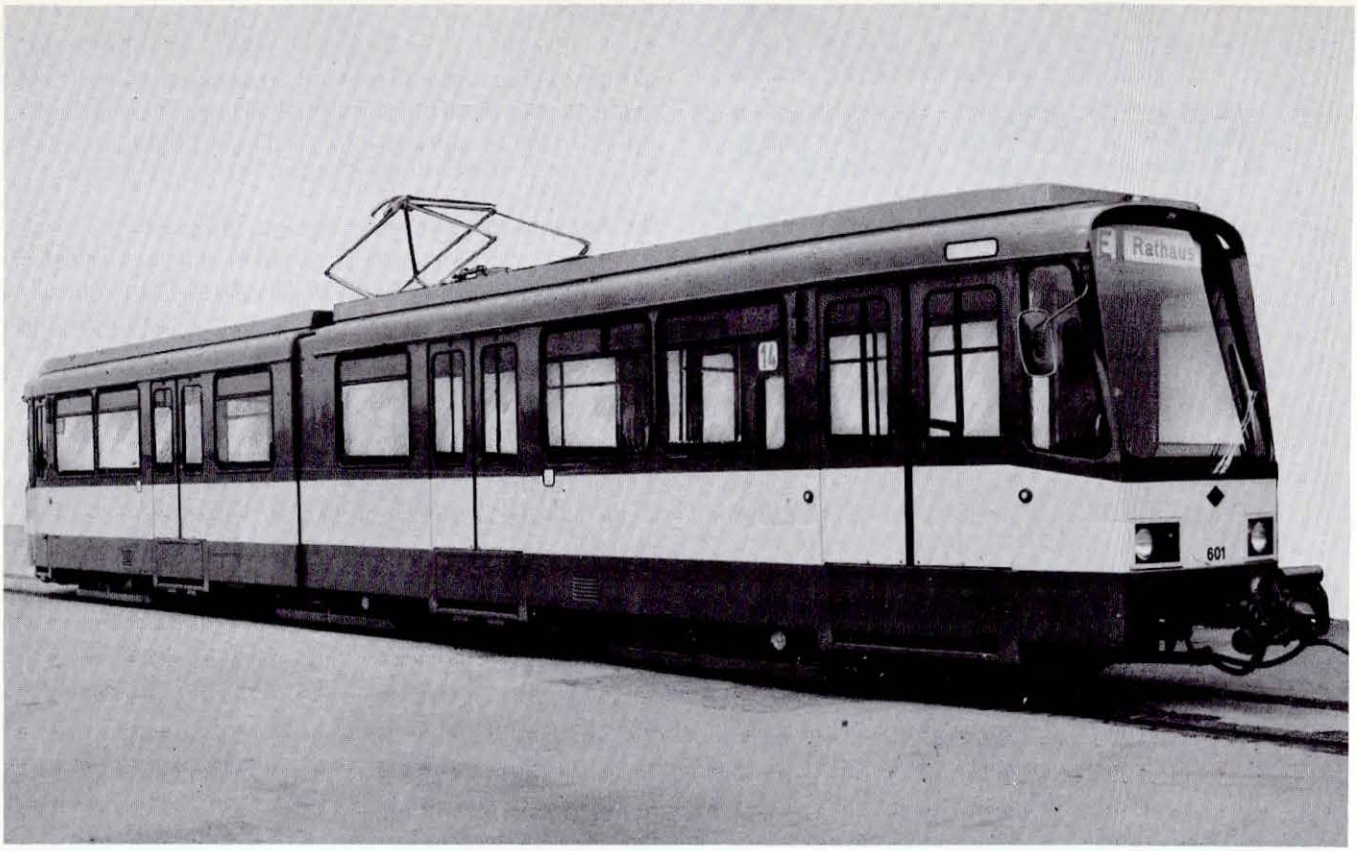

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MOVING PEOPLE

Four firms asked to join ARRT-car design competition

Boeing's Vertol Division has selected AiResearch Co., General Electric, Rohr Industries and Vought Aeronautics Co. to participate in a design competition to develop Advanced Rapid Rail Transit cars under the Advanced Concept Train project. This program is applying government funds and the resources of modern technology to the problems of improving the country's urban rapid transit system.

New York City is empowered to issue bonds for transit

New York Governor Rockefeller has signed legislation establishing a Transit Construction Fund in New York City with power to issue up to $250 million in bonds. Money from sale of the bonds would help the city finance its share of building new mass-transit facilities without exceeding its debt limit. Rockefeller said sale of the bonds would enable the city, with Federal help, to "continue progress on urgently needed mass-transportation projects, including construction of the Second Avenue subway line, completion of construction of the 63rd Street crosstown line and purchase of new subway cars to replace antiquated rolling stock."

D.C. Metro chooses GRS ATC system

The Washington Metropolitan Area Transit Authority has selected the General Railway Signal Co. to supply the automatic train control system for the Washington Metro. The system proposed by GRS consists of three control subsystems and a computerized central control facility. Also, a joint venture of the Swindell-Dressler Co. and Paul R. Jackson, Inc., has been the apparent low bidder, at $14,747,287, for construction of Metro's Smithsonian Station and about 1/4 mile of connecting line. The bid was 24% below the authority's estimate of $19,643,500.

Jersey bond issue is not pro-highway, says John Kohl

"A billion-dollar transit improvement program would be generated by [New Jersey's] proposed transportation bond issue, and those who claim it is biased in favor of highways are dead wrong," says John C. Kohl, chief of the state's Department of Transportation. "This is a bus and rail transit program first and a highway program second," Kohl adds. The bond funds, with Federal participation, are expected to generate a program amounting to $720 million. Another $280 million in improvements would be provided by such agencies as the Port of New York Authority.

CN to carry autos and passengers on same train

Canadian National has announced an experimental plan which will allow passengers to transport their automobiles on the same train on which they travel. The plan is an extension of CN's Car-Go-Rail service which carries automobiles in specially designed cars on fast freight trains. At first, the new plan, to be called "Auto with You," will operate only on a through basis from Toronto to Edmonton, and return, via the road's "Super Continental." It will be introduced June 23, when CN's summer schedule becomes effective. Advantages of the new plan, compared with the conventional Car-Go-Rail system, says CN, are delivery of the automobile to the railroad on day of departure and the availability of the vehicle on arrival at destination. Users of the plan will be required to make advance reservations.

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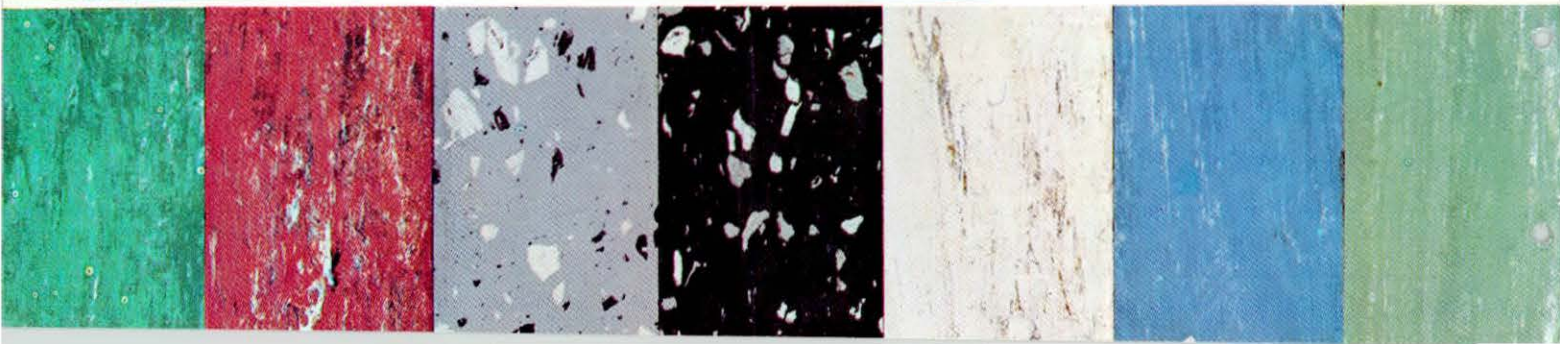


bart

gets ready to press the start-up button

By JOE ASHER

All right, everybody, you can uncross your fingers. The Bay Area Rapid Transit system is getting set for a big opening this fall. Target date: Sept. 1.

Opening dates have been set before, then broken. Even this one is subject to postponement if deliveries from carbuilder Rohr Industries are too slow. But if it's put off, it won't be by much. Tick off the well-known delays—money problems, car problems, traction problems and so on. One by one they have been resolved. The only question mark of any consequence concerns the automatic train control system. And everyone concerned is convinced that problem is all but resolved.

So this time, it's for real. The plan is to get the southeast leg of the system open first—that's from Oakland to Fremont. By the end of the year, the other two legs on the East Bay side—Oakland to Concord and Oakland to Richmond—will follow.

● **Then—in June 1973.** By the middle of next year, hopefully June, the balance of the system will come into service, meaning the tube across the

bay, and the run through San Francisco to the southwest terminus at Daly City.

The BART people's feelings range from excitement to cool satisfaction to pure relief, now that they are finally seeing the home stretch. After all, the $1.4-billion project has been going for ten years, and it was a hotly debated plan for a long time before that.

"In spite of all our trials and tribulations," says Bill R. Stokes, BART general manager, "I was never in any real doubt about the outcome. Sure, you have your good days and your bad days, but I wasn't discouraged. We never deviated from the goal of making this system as good as or better than what the voters voted for. People are going to be proud."

What about Westinghouse Electric's train control? Says Stokes: "That's the last remaining hangup. There is apparently no big technical problem. It's more a matter of fine tuning, just as you would tune a color TV set. We've got the word of Donald Burnham [board chairman of Westinghouse] that we can meet our target date. So we think we're out of the woods."

David G. Hammond, assistant general manager for operations and engineering, smiles as he recalls the day he signed up with BART in 1964, thinking it would be a cut-and-dried affair. Then the flaps started coming, one after another. Hammond said more than once that he didn't favor all the decisions made before his time.

What is he saying now? "If I had to do it all over again, I certainly would change some things. But it would be like what Gray said when he took over the FBI after Hoover—changes in style more than changes in substance. Get the third rail and the collector shoes on the same contact—that kind of thing."

● **The awards came in.** In the meantime, Hammond and the joint venture consultants, Parsons Brinckerhoff-Tudor-Bechtel, have picked up numerous awards from professional engineering societies (ASCE and IEEE) for engineering and design excellence.

Along the way, Hammond admits, "We had constant problems of quality control. Something would work but it wouldn't work consistently. To get it to work consistently would take time. Our biggest problem has been at the interfaces—the automatic train operation and the cars. We're satisfied now that the car problems, including the traction, have been resolved. The same goes for the automatic fare collection system.

"The last big curve coming up is the automatic train operation. We're convinced that Westinghouse is putting out an effort to beat this problem. In the end, they ought to come out smelling like a rose."

(Hammond won't confirm industry rumors that the riot act got read to Westinghouse by both BART and carbuilder Rohr over traction and then ATC. What is known is that there are some new faces in key jobs at Westinghouse.)

Rohr is getting high marks from BART personnel for technical knowhow and for taking pains to get the job done. Rohr closed down its production lines twice because engineers were not satisfied with the quality of work, and were bent on improving it.

● **The Rohr strike hurt.** A third production shut-down, this time not deliberate, was a 63-day strike that hit Rohr's Chula Vista, Calif., plant this spring. After the strike was over, there was still the problem of skilled plant workers who transferred or left Rohr's employ. They had to be replaced, and the new men's skills upgraded.

For that reason, the production run at Chula Vista has been deliberately kept slow at first: One car a week for now, but building up to one car a day before long.

In toto, Rohr will deliver 240 revenue cars. Rohr's ten prototype cars (and isn't everybody happy there *were* prototype cars first?) already delivered to BART will be retrofitted as revenue cars, though not immediately. (An accident last fall damaged two of them during a manually controlled test run over BART tracks. They are to be repaired and added later.)

For the opening itself, BART wants about 60 cars to begin operations, but the thinking is they could get by with fewer. Twelve stations along the A line (the southeast leg) will be served on a 6 a.m. to 8 p.m. schedule, initially.

On the civil engineering side, problems have been fewer, and the system is virtually complete, except for some stretches in San Francisco proper.

It is worth noting that BART is a showcase not only for running trains, but for public works and for architectural distinction.

● **And that Transbay Tube.** On the public works side, the Transbay tube (just under 4 miles long) is considered a technical tour de force. Concrete sections were floated into place and buried in a trench. The tube was built with flexible joints calculated to withstand severe earth tremors.

The tube was all the more of a feat, in view of the fact that the locals in San Francisco pressured BART for an extra station at the foot of Market St., long after the basic design was locked up and ready to be bid. The station is close by the tube entrance and further complicated the tube's engineering, but in the end it was all neatly done.

On the architectural side, there are 34 stations, many of which compare in visual distinction with the best of the Stockholm and Montreal Metros. As in the two latter cases, individual architects and artists were encouraged to submit designs, to avoid a dulling sameness about all the stations. But the architecture isn't "fitted on" like icing on a birthday cake. From the point of view of lighting, graphics, pedestrian flow and ease of access, the stations are as functional as they are handsome.

Old BART-watchers will recall a flap of the mid-1960s: Lawrence Halprin, the famous architect, quit consulting for BART, saying his proposals were ignored or vulgarized. At the time, Stokes was able to show in detail that Halprin's charges were baseless.

But the joker is that BART has come out a winner of visual design awards. The aerial structures, graceful and set in park-like strips, have already won acclaim as the complete antitheses of what eastern transit El lines used to be. It's a good bet the BART stations will come in for their own round of awards.

● **The moment of truth.** Everything that has gone before was naturally just a prelude to the great moment of truth, operations. The board of directors okayed a $20-million operating budget for the fiscal year beginning July 1. There is an option to raise that amount to $26.7 million, if necessary, with board approval.

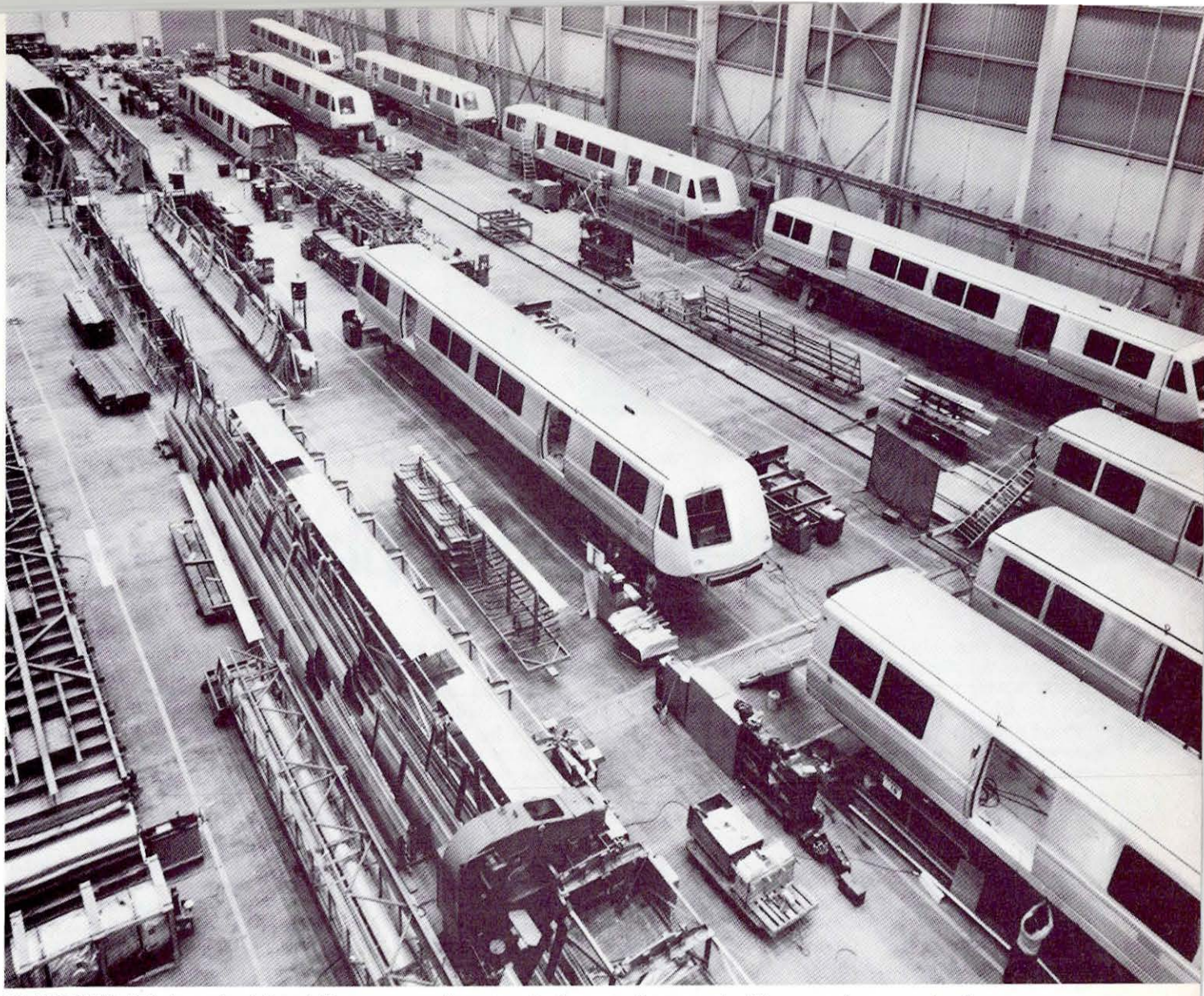
The point of course is that now BART faces the twin unknowns—how many passengers, and what does it cost to carry them. According to Alfred E. Wolf, gen. superintendent of transportation, traffic is estimated at about 45,000 riders a day around inauguration time. That will gradually work up to 100,000 each way per day, when the full system is in service. That amounts to 60 million riders a year.

L.A. Kimball, BART assistant general manager for administration, points out that hiring personnel to operate the system has been steady but gradual. The labor contracts for running the trains have not as yet been signed.

If that looks like a time-bomb, in view of labor history on transit systems elsewhere, it shouldn't. From the outset, BART's labor policy has been to farm out the maximum amount of work and keep the staff small.

During the construction phase, for example, the PBTB joint venture was doing the bulk of the detailed design work and engineering management, and hiring the laborers to do the manual work. As many as 5,000 people were on the payroll at one time—but it was BART's payroll only indirectly.

● **Automation—and people.** Now, heading into the operational phase, the BART staff is growing, but still not by that much. The personnel roster is about 750 now, and will rise to something like 1,500 by 1975. Automation—on the cars, in the control center, in the yards—has done two things: it has turned certain skills over to machines, and it has substituted lower-grade skills for high-grade skills in certain slots.



ON THE WAY: Rohr has so far delivered 15 revenue cars. Present production rate of one a week will be stepped up as opening day nears.

The PBTB joint venture, at Stokes' behest, is not leaving the picture; they'll help to set up the operating phase and share in that, too.

What will service be like? According to Wolf, when the full system is running, there will be 2-minute headways through the tube connecting San Francisco and Oakland, at peak periods. On the Oakland side, trains fan out in three directions to Richmond, Concord, and Fremont. That ought to mean 6-minute headways on each of those legs, but it doesn't. Other trains will move up and down the line between Richmond and Fremont, and cut the headways to 3 minutes. Trains will be up to 10 cars long.

At periods close to peak, according to Wolf, headways will widen to 8, 10 and 12 minutes. During the rest of the day, during weekends and at night, intervals between trains will be 20 minutes. The system will shut down completely between 1 a.m. and 5 a.m. each day for routine maintenance.

Train attendants (the equivalent of motormen elsewhere) will man the cabs of the trains. Since the ATC system does the actual operating from the central control center at the Lake Merritt station in Oakland, the train attendant's main job is to take over manually in emergency and to monitor the doors. The attendant is the crew.

● **There may be standees.** Cars seat 72 passengers, and BART officials, who once promised a seat for everyone, are now quietly conceding "there may be some standees."

Promised speeds of up to 80 mph *will* be met. Trains will average 45-50 mph including station stops.

According to Kimball, "5,500 applications were screened in the past year. We'll be selecting about 1,000 of whom around 500 are already on the staff. We'll employ 180 station agents, 225 train attendants, and in the maintenance field, we're recruiting about 120 in the shops, 200 in the field." Training programs for train attendants run six weeks—including classroom and on-the-job training.

Kimball adds that a complete management information system was set up for close monitoring of all aspects of the operation. Certain aspects—for example, monitoring of each station's activity at 5-minute intervals—will be phased in later.

On the security side, BART will have three armored trucks, and a security force (size still to be determined) whose guards have peace-officer authority.

Wolf points out that BART has three yards, complete with storage tracks, turntables, and equipment for routine maintenance. They are at Concord, Richmond, and South Hayward. The latter is biggest, and is designed for heavy repairs. The Daly City terminus will have just an extra track; no yard. A maintenance of way shop is installed in Oakland.

One BART man has a crack about starting the service: "Give our people combat training for when they face those first commuters Monday morning."

Right now, it looks like no sweat.

The car ride sells itself—BART will sell destinations.

Natural light is exploited at Balboa Park station.

To win riders, BART plans low-key

Once the curiosity traffic after the BART opening dies down, will BART still pull in a big volume of riders, day in and day out?

Good question. Shiny new cars and a space-age image are novelties for just so long. So nobody at BART is taking the attitude that customers will just keep flocking in by themselves. Instead, the prevailing tone is—Hustle like mad to sell the ride.

Bill Stokes made a key decision on marketing that tells all. He raised it to co-equal status with engineering and operations. Lawrence D. Dahms, assistant general manager, planning and public service, and the man in charge, puts it this way: "Our job will be to position the mind. What we'll be saying is 'Come and Try Me'."

● **The marketing push.** As opening date for the system draws closer, the marketing department is swinging into high gear. But not so much for the opening as such. A big publicity splash the first day will be deliberately avoided. There will be a rotogravure insert in the local newspapers, a distribution of route maps, perhaps some isolated spot announcements on TV and radio in the week preceding the opening, no more. Big-name politicians will be encouraged to come not then, but for an official dedication later on.

This accomplishes two things. It keeps opening-day crowds from getting unmanageable. And it avoids the "Second Coming" syndrome that always leads to nit-picking if things aren't 100% perfect the first day.

Then begins the down-to-earth business of getting Bay Area residents "used to" BART.

Some years back, of course, when the BART car design was brand new, the car mockup was displayed throughout the Bay Area, to give people an idea of what the car fleet will be like.

Now, completed stations are getting "Open Houses" for residents to familiarize themselves with the "look" of BART. The first Open House this spring, at El Cerrito, drew 8,800 people—a good sign.

● **Roving trouble-shooters.** Passenger-service representatives (smart-looking, college-educated girls a la the airlines) meet the locals and answer their questions. But that's not just for the Open Houses. The passenger reps will stay on with BART, acting as roving trouble-shooters, as speakers at group functions, and to be available for conducted tours of the system.

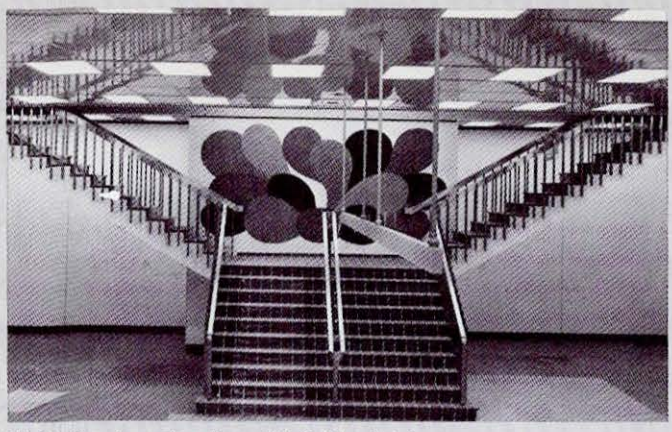
The point, of course, is partly to steer people right if they're confused, partly to humanize a highly automated environment, and keep it from getting too soulless.

BART marketing men studied line and system openings elsewhere, and were impressed with PATCO's program of familiarizing small children with the automatic fare collection system: They're brought in groups and shown how it works. Something similar will be tried.

A telephone information center will

Pedestrian flow is easy at this arcade in Berkeley.

Automatic fare collection speeds service, is handsome, too.



Vivid, flowing colors liven this Oakland stairway.

An artist's commission, this exotic design is at Richmond.

but intensive marketing campaign

be set up to answer questions on scheduling, deal with complaints, lost and found, and give people a sense of "where you find out things." It is possible the center will function jointly for BART and the local bus and trolley lines—AC Transit and the Muni system.

Train destination signs for the stations will have moving automated displays: they will announce the trains themselves, of course, but also news, weather, special events, and commercial messages in between.

Free-standing, movable kiosks will be installed in some stations to carry other BART announcements. Negotiations with the banks will probably lead to the latter handling off-line ticket sales.

The aged will get 75% reductions off zone fares of $.30 to $1.05.

Neither traffic studies nor attitude surveys are anything new to BART; they have gone on at regular intervals since the mid-1950s. The most recent survey, held last fall, showed that many local people still have fuzzy ideas about BART. This is no doubt the residue from all these years of delay.

● **Service 20 hours a day.** First, to nobody's surprise, the basic appeal of BART was shown to be its availability for work trips. But the survey showed few aware of how frequent the service will be. Accordingly, every effort will be made to drive home the point that trains run all the time during the day. and run on 2 to 6 minute headways at peak periods.

Second, it showed few aware of feeder bus possibilities to reach BART lines and thus get to work. Besides the negotiations going on with the local bus lines to get feeder buses, there will also be a publicity effort aimed at making people aware of them. Bus 'n ride is a proven success in other transit cities. It ought to be just as successful here.

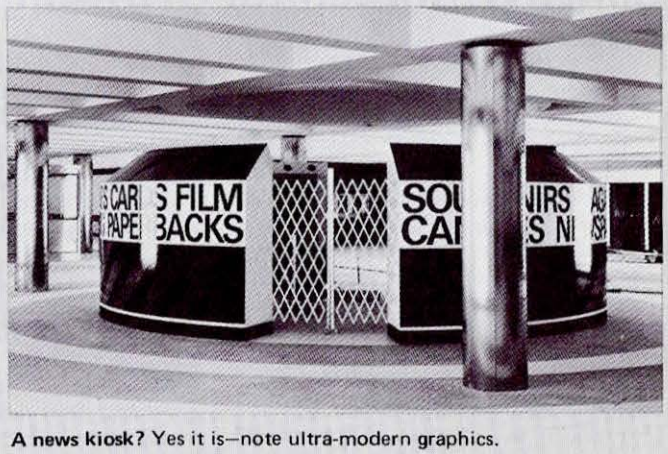
Third, parking lots at outlying stations will be big and for the most part free—and for BART riders exclusively.

● **To increase off-peak riders.** Aside from work trips, an all-out campaign will be directed at bringing up the number of off-peak riders. One local bus company adopts the well-known Greyhound tag—Ride the Bus and Leave the Driving to Us. BART marketers feel the selling of the service as an abstraction can go only so far, and the pitch should be keyed instead to selling specific *uses* for the service: Besides going to work, ride BART to such things as ball park events, arenas, schools, concerts, museums and shoppers' specials.

In other words, sell the seat, not just the service. Stress the availability of the service, its convenience and so on—then promote occasions one by one to use it.

The avowed goal is to get 11% of the work trips in the area BART serves, and to keep trains from running near-empty in between. The survey showed 7% committed to using BART to go to work, and another 6% undecided. It's to tip all those "swing" riders into the right column, and iron out the peaks and valleys as well, that BART's marketing arm has gotten cracking.

Park 'n Ride at Fremont—the end of the southeast line.



A news kiosk? Yes it is—note ultra-modern graphics.

BART is a railroad, after all. Shops and yards were built from scratch. Hayward Yard (above) handles heavy repairs.

It all began two decades ago...

BART appears to be the greatest single public works project in history since the pyramids. And the gag is, the BART people seem to have taken as long to do their thing as the Egyptians did to do theirs.

Understandably, there has been local grumbling about the seemingly endless tearing up of streets for construction. And BART has been around so long, it is easy to forget that its purpose is to run trains, not rearrange the Bay Area scenery all the time.

Consider. The Bay Area Rapid Transit Commission got started in 1953. The engineering consultants, Parsons Brinckerhoff, Hall and McDonald (now Parsons Brinckerhoff, Quade & Douglas) made their preliminary recommendation for a transit system in 1955. Three Bay Area counties (Marin, San Mateo, Santa Clara) opted out of the system, and the others cast about for some funding formula.

● **Revolutionary idea.** Bear in mind that in those days, Federal aid was not skimpy, it didn't exist at all for transit. So it was a pretty revolutionary idea for voters in San Francisco, Alameda and Contra Costa counties to decide to tax themselves to build a completely new transit system from scratch. But this they did in 1962, raising $792 million.

The engineering consultants (by now the joint-venture body Parsons Brinckerhoff-Tudor-Bechtel) then got busy on detailed plans. The 1963-65 period was given over to building the Diablo Test Track (now part of the revenue system) and testing out new technical ideas before actual bidding.

Inflation caught BART badly, and the long search began for extra cash to finish the system. Or more exactly, to finish the system to the operating and aesthetic standards that the voters were promised.

The state of California diverted $180 million in bridge tolls to finance the Transbay Tube. The three local counties added a 1/2% tax sales to raise another $150 million. The cities of San Francisco and Berkeley had special requirements—the former to get an additional station (Embarcadero Plaza) at the foot of Market St., the latter to put an aerial line underground. They raised about $25 million themselves for those purposes.

● **Then, Federal aid.** Most important of all, Federal aid came on the books in the mid-1960s, and money from Washington started to flow westward. BART has collected about $200 million by now from that source. So the final price tag for BART is on the order of $1.4 billion. That's close to double what the voters were told it would cost, way back in '62.

In fact, it's a bargain. Every other cost, highway construction included, has gone way up since those days. According to one estimate, BART saves the need to build 30 more freeway lanes. If that is the case—and if BART succeeds in getting motorists out of their cars and thereby helps to cut air pollution, highway accidents, and the need to convert more downtown real estate for parking purposes—BART is cheap at the price.

That's not all. It is well known that BART sparked a real estate boom along lower Market St. in San Francisco: Over $1 billion in new office building construction, and an important incentive to the Yerba Buena upgrading and redevelopment project.

Two more things need to be pointed out in this connection. First, that local bank economists believe the end of the boom is not yet in sight. Second, that the East Bay Region did not get short shrift at the expense of San Francisco. Dozens of new office structures have sprung up along BART's East Bay lines, and it is common knowledge that developers have made killings on real estate values that doubled or tripled at outlying points where the BART lines end.

Assuming in the end that BART is responsible for $6 to $10 billion in *appreciated* real estate values, local governments stand to collect that much more in local assessments. In that light, BART's $1.4 billion cost to the public looks smaller than ever.

● **Criticism and doubt.** Through the years, there has been a lot of criticism of BART, its management and its engineers. A lot of it was trivial and uninformed. Some of it—coming from transit men basically sympathetic to BART and its aims—has reflected genuine doubt about technical decisions they made.

The decision to adopt a broad (5½ ft) gauge rather than standard gauge is an example. Engineering studies indicated that the cars would have more stability in high winds on broad gauge. But since that decision was locked up, the Japanese New Tokaido Line has compiled a fine track record (no pun) at far higher operating speeds than BART—and on standard gauge.

Another criticism is that both suppliers and consultants had a learning curve to go through *after* the test track program—witness the production delays on the cars. The car troubles appear about over right now, and BART engineers have high praise for the job Rohr Industries did.

But the cars are still 3% overweight, apparently because of the traction design. This may or may not mean increased power costs—there is some controversy on that point.

More serious, perhaps, is that BART will not be fully a push-pull operation, because there are A and B cars, and only the former are equipped with cabs and operating controls. In typical service, this is not a problem—there could be A cars at either end of a train and any number of B cars in between. But from time to time, when a reversal of train direction is called for, a B car will wind up facing the wrong way. Accordingly, all BART yards have turntables—a throwback to the roundhouses of long ago.

● **Too automatic?** The automatic train control has had well-known problems. Westinghouse Electric gives every evidence of having gone from de-bugging to complete redesign. Although the problems are by all accounts on the way to solution, if they haven't been solved already, there is a feeling in some quarters that perhaps the system is *too* automatic.

Like ATC systems everywhere, this one is equipped for manual override in exceptional or emergency situations. But the train attendant (who here has to become a motorman) has neither cab signals nor wayside signals to go by, when he shifts to manual. The train is either brought to a halt, or he takes it at slow speeds (below 25 mph) up the track, following instructions from the operations control center by trainphone. There is no way to back up a train until it comes to the next crossover.

Another criticism centers on the role of the joint-venture consultants. A muck-raking journalist some years back thought he had stumbled on a real scoop when he discovered that the PBTB joint venture stood to make over $80 million on its work for BART. Since that time, the fee has risen to more like $107 million.

That in itself is no cause for scandal. In fact, it is well within fee guidelines of the professional engineering societies for work of this nature. What is more to the point is this. Do transit operators want not merely some but all or practically all technical and design decisions that they have to live with made by somebody else? The BART management attitude is: The consultants have the expertise and the staffs in house to do the work. So let 'em do it.

This argument goes over in some places, not in others. In cities with no existing rapid transit system, it has definite appeal; in cities that are not beginning from scratch, it encounters great skepticism.

● **Excitment reigns.** In the end, all these criticisms don't add up to all that much. Everything that counts importantly about BART is demonstrably okay, or close to getting there. Transit men not only in this country but around the world are wholeheartedly excited that things have turned out so well.

It was Bill Stokes' distinction to have recognized long ago that transit is a political matter before it is anything else—and to keep his fences mended accordingly. (This is a lesson the rest of the transit industry learned slowly.)

All things considered, differences of opinion on technical points should not be allowed to obscure the very real achievements of the BART management and its joint venture consultants. If anything, in a project of this magnitude, far more should have gone wrong!

...and nobody knows where it will end

It should not be forgotten that when BART was first dreamed up in the 1950s, the original concept was of a much larger system. In toto, including all stages spread out over decades, it would have meant 385 route miles.

The plan went nowhere. It was too grandiose for the time. In the pre-inflationary 1950s, the sums involved looked mind-boggling. Regional thinking was still an exotic idea, and the BART concept went counter to the prevailing automobile orientation of the period.

Now that the three-county 75-mile system is virtually complete, times have changed, and so has the prevailing thinking.

There are several individual studies going on for BART extensions. One would be a spur from the A line to the Oakland Airport—perhaps with a people-mover. Another would be a conventional rail line extending from Daly City to the San Francisco Airport. A third would branch off the Market St. Line and serve northwest San Francisco. Two more studies would extend East Bay lines to the Pittsburg-Antioch and Livermore-Pleasanton areas.

The first point about this is that some of the people who opted out of the system at one time are having second thoughts.

Second, BART has been a catalyst for regional thinking and planning. In the words of a key San Francisco banker, Emmett Solomon, chairman of Crocker Bank, "BART helped to bring many different political jurisdictions together. It helped people to see beyond the immediate concerns of their own communities. I personally think BART is paving the way for some kind of regional government in the future."

Regional government may be some time coming, but regional thinking is getting stronger all the time. The Association of Bay Area Governments has been working on guidelines for transportation and land use right down to 1990. Interestingly, the ABAG group revives something very like the old BART master plan, and gets it back on the drawing boards as a land-use guideline proposal.

To be sure, the top priority for now is getting the 75-mile system open and running, then working on some short extensions. But something much, much larger is still there, lurking in the background. ■

Supers tackle four toughies at mid-June Chicago sessions

On the AARS agenda: Handling hazardous freight; better terminal operations; managerial development; getting the most from computers.

Operating officers will be debating four of the toughest problems facing operating men today, when the American Association of Railroad Superintendents holds its 76th annual meeting June 13-15 in Chicago. On the AARS list of subjects:

—The safe and profitable transportation of hazardous materials.

—Improvements in terminal operating practices.

—Blending education and experience in developing operating-department managers.

—Making optimum use of computer capability in the area of operations.

Principal speakers at the AARS sessions will be P.F. Cruikshank, president of Fort Worth & Denver, opening the conference with the traditional charge to the superintendents; and Louis W. Menk, chairman and chief executive officer of Burlington Northern, speaking at the Association's annual luncheon meeting.

● **Safety and economics.** In particular, the AARS committee on movement of hazardous commodities has come up with a penetrating report which looks not only at the safety aspect but also at the economics involved. The committee, headed by J.S. Dehl, manager-hazardous materials, Penn Central, comes to the conclusion that "The movement of hazardous material by rail is vital to our economy. The safety record through the years has been good, but we have now reached a point at which the pendulum could swing either way, depending upon how the industry responds to the major forces that are now pounding away at this record. These forces are (1) political pressure; (2) hysterical legislation; (3) marketing concepts that fail to evaluate additional costs and hazards involved; (4) unreasonable and unworkable government regulations."

Dehl's group declares that the industry "must develop a better awareness of the necessity for concerted action to correct and avoid exposure [to safety problems and economic problems] through (1) control of initiatives within the various elements of interest which may be separated by departmentalization; (2) greater efforts to minimize train accidents from which problems originate; (3) better control of the practice of issuance of special permits for movements which have not been thoroughly evaluated as to potential hazards; (4) more definite limits on extent and time of these special permits, which can get beyond point of recall or control in an economic sense; (5) better coordination as an industry through a specialized technical organization with authority, such as the Bureau of Explosives."

The committee's conclusion: "We do not believe that present circumstances and practices provide for the safe movement of hazardous materials profitably, but we believe this can be accomplished by means of the recommendations offered. In the present political climate, to do otherwise will expose the railroad industry to more stringent governmentally-imposed regulations."

● **Management development.** The AARS committee on development of operating managers meets head-on the familiar union charge of "featherbedding" in management. It also comes up with a critical comment on the still-common management view of an operating man's job, and on the fact that today's life-style is not compatible with the 24-hour-a-day, seven-day-a-week responsibility and callability involved in some operating positions.

This group, headed by C.W. Hoppe, principal in Peat, Marwick, Mitchell & Co., wound up in agreement "that the objective of training and management development should be to produce officers who understand the railroad business and who can think, so that they can adjust to changing conditions. Although college graduates may have more formal training in analyzing situations and asking why things are done, men from the ranks tend to have more of a first-hand feeling for operations. With proper training tailored to their individual needs, either group can produce outstanding managers, and it makes little sense to arbitrarily restrict opportunities to people with any specific background. It is the capacity to think which is critical in today's fast-changing situation. To attract and retain men who can think, the railroads must continue to improve the working conditions of railroad managers. This generally will require the continuing growth of division-level management positions. The need to develop managers who can think and the increased numbers of such positions is the essence of the 'management gap' which concerns many industry experts."

● **"Computers: We need 'em."** AARS' third special-subject committee, on operating-department use of computers, is chaired by C.T. Melton, trainmaster, Southern. Its sum-up is that "No one needs computers more than the operating department on any railroad. While the introduction of computers to railroads was slow and elementary, the growth in needs and uses of computers has been spectacular during the past few years. There is still a lag in full utilization by operating people, due mainly to the inability of the programmer and the operating man to communicate. At first, there was a drought of meaningful reports for the operating man due to this communication gap, and even now there is reluctance on the part of operating people to fully use printouts available since they are written in the language of the technicians. This committee feels that it would be useful for the individual roads to hold seminars, joint meetings, staff meetings or whatever, in the interest of furthering the togetherness of the programmer and the operating man. Much can be done to increase the usefulness of computer data, through such meetings."

AARS members will also be taking a new look at an old problem—improvement of terminal operations—but in a new format. Workshop sessions on the general topic "How Can We Survive With Our Terminals?" will be under the direction of R.L. Banks, president of R.L. Banks & Associates, Inc.

In addition, AARS will have presentations on operating rules by A.J. Powers, (retired) regional supervisor—operating rules, Penn Central; on freight loss and damage prevention by D.G. Ruegg, assistant to the vice president-operations, Santa Fe; and on environmental problems by C.F. Muelder, utility engineer, Burlington Northern.

President of AARS for 1971-72 is Clark Hungerford, Jr., assistant to president, Western Railroad Association. ■

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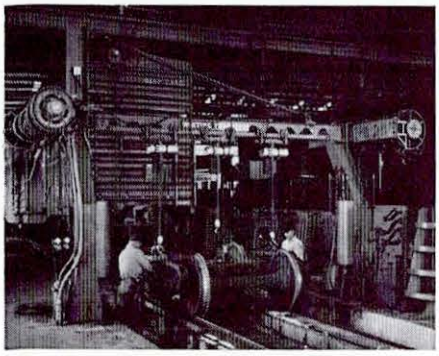
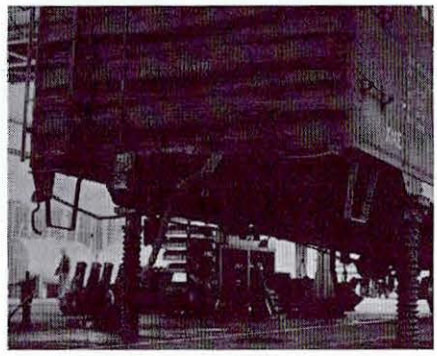
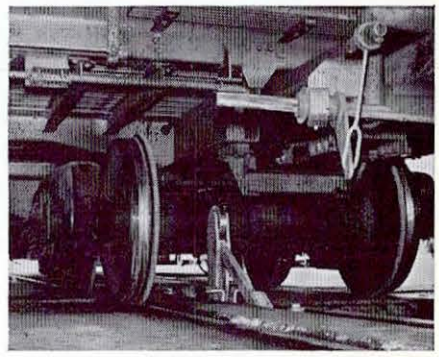


REPAIR STATION JIB CRANES

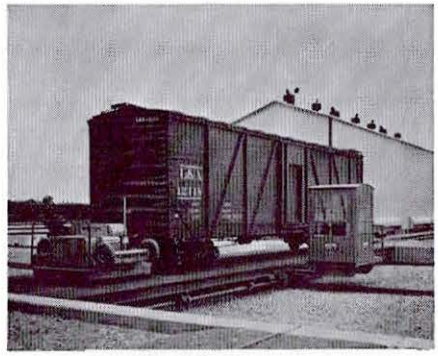


LATERALLY ADJUSTING RIPJACKS



"ROBOT" REMOTE CONTROL CAR MOVERS

DROP TABLES



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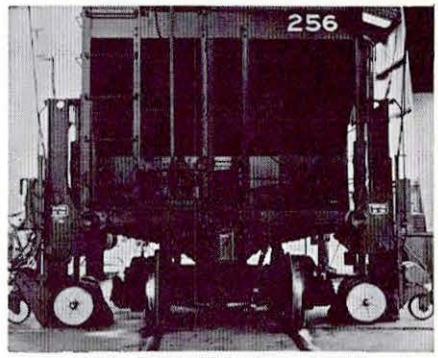
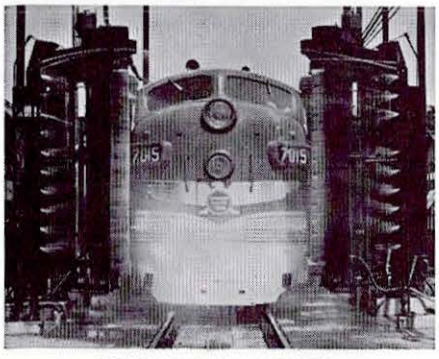
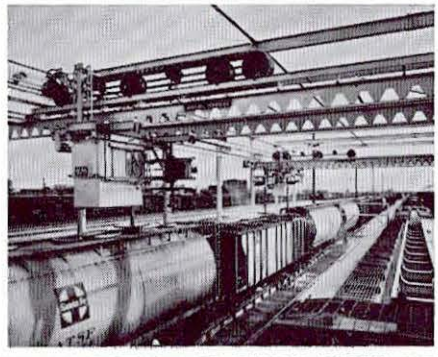


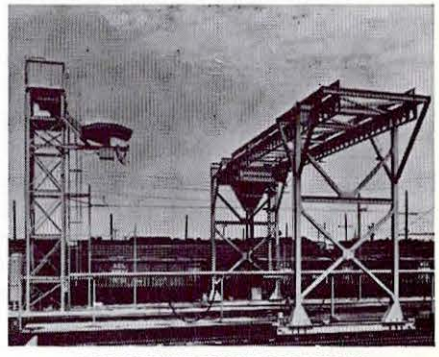
PORTABLE JACKS UP TO 50-TON



TRAIN WASHING SYSTEMS



WASHING INTERIORS OF COVERED HOPPER CARS



LOCOMOTIVE SERVICE GANTRIES

Circle 15 on coupon page 45

Procession of road/rail equipment waits for local freight to clear before departing from Smithsburg, Md.

Three Vista Cruisers and an Ambassador head the parade east over the Western Maryland. . .

. . .as nine units of work equipment follow. The unusual procession ended its tour at Highfield, Pa.

Unit ready to retract flanged wheels here is one of two American Motors prototypes designed to RAMA specifications.

Road/rail hybrids star at RAMA

"On/off-track" is "in." The recent trend toward guided-wheel automotive vehicles is accelerating. Units that combine the best of conventional flanged-wheeled vehicles and off-track automotive equipment are increasingly available with new capabilities and greater capacities. The problem has been to have vehicles with the right wheel-tread gauge to ride properly on the rails.

The Railway Automotive Management Association (RAMA), formed only eight years ago, has just sponsored its second exhibit of vendors' equipment. A three-day show at Hagerstown, Md., featured about 25 units ranging from the now-commonplace road/rail inspection cars (station wagons) to high-capacity cranes and sophisticated units that combine a number of functions previously requiring several vehicles.

Stars of the show were four American Motors Jeep Division vehicles. American Motors, alone among the automobile manufacturers, has worked directly with RAMA to develop a single production frame with 4-foot, 8½-inch gauge adaptable for on/off-rail services. The prototype, designated Model XP-003, is designed for gross vehicle weights up to 15,000 pounds.

On exhibit at Hagerstown were two stripped chassis, one with a 110-inch wheelbase and the other with a 133-inch wheelbase. Also shown were a chassis mounted with a BK&B (London, Ont.) truck body to form a two-man track inspection car with a 6,000-pound g.v.w.; and a prototype crew car, with seat space for a driver and from five to seven men, and a 12,000-pound g.v.w. The last-mentioned vehicle, manufactured by the Penn Verstile Van Division, was completed only 20 days before the show.

RAMA officers were high in their praise for the efforts of the manufacturers involved to create a basic guided-wheel vehicle that would meet a wide range of requirements, a need intensified due to the trend toward the "wide tracks" by the automobile manufacturers.

Western Maryland President W.P. Coliton was the featured speaker at the RAMA meeting, and commended the supply industry for developments in RAMA's field. Mr. Coliton played host to the RAMA members, providing an unusual procession of 13 varied road-rail units over Western Maryland's main track from Smithburg, Md., to Highfield, Pa., 8.1 miles.

The accompanying illustrations show most of the equipment which contributed to the value of the RAMA show, which was attended by representatives from more than 25 of the nation's Class I railroads. ■

WE ONCE BELIEVED IN THE SURVIVAL OF THE FITTEST.

WE STILL DO.

The law of self-preservation applies to companies as much as it does to individuals.

And we're no exception.

As the world's most experienced builder of rail transportation equipment, we've survived in leadership through a constant re-dedication to excellence. We've seen change as challenge, approaching new problems with experience, and solving them with new ideas.

But 1971 gave pause to many.

A revolution in transportation, a crisis in railroading, artificial solutions to economic problems, and a permanent political involvement in business challenged the survival of established rail passenger car builders.

But, we found human confidence in the knowledge that we were what we believed—the most experienced and capable rail passenger car engineers and builders in the world, in a country that desperately needed solutions to commuter and urban mass transit problems.

In 1972, this confidence has become commitment.

With the remarkable performance of Pullman-Standard cars in helping the Boston transit system, Cleveland airport service, and the Chicago and Northwestern commuter service be outstanding successes, we look toward new opportunities.

With our successful development of new transit and passenger car equipment, we've seen that the public will respond to new ideas in rail transportation. Government planners have recognized this, too, and are seeking new concepts and expanded service. We look forward to the opportunity of aiding in this effort.

If we have renewed confidence in the future, it is largely because we have found confidence in the people who dedicate themselves to the transportation needs of our cities, through local and national agencies. The result is a new spirit of creative partnership.

Now, more than ever, we believe in the survival of the fittest.

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Circle 14 on coupon page 45

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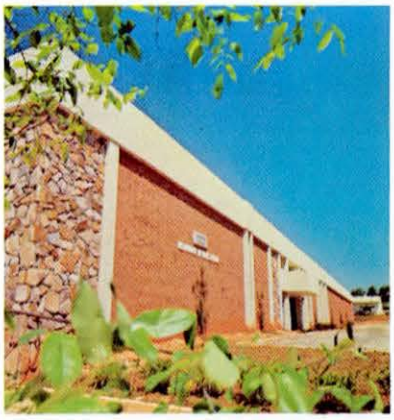
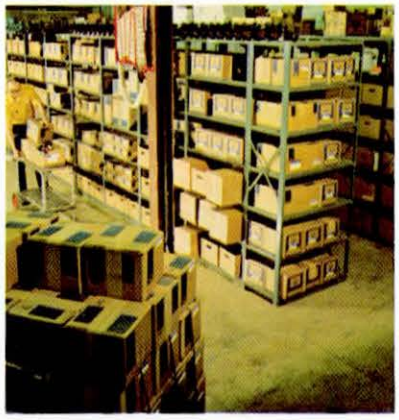
We maintain a level of inventory to meet your needs in five locations across the country. The master warehouse is at our Wilmerding headquarters. Distribution centers are in Chamblee, Georgia; Hammond, Indiana; Kansas City, Kansas; and San Leandro, California. Parts are normally shipped within 24 hours of receiving your order, but faster deliveries can be handled in critical situations.

To us, this is one of the ways we earn your business. To you, WABCO inventory control means dollars . . . available dollars that aren't tied up in huge inventories. And yet, you have the replacement parts where and when you need them.

Modern, efficient inventory control is just one of the ways WABCO serves today's railroads. We'd like to give you the whole story. Write: Westinghouse Air Brake Division, Westinghouse Air Brake Company, Wilmerding, Pennsylvania 15148.





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Circle 16 on coupon page 45

excessive control.

SLOW EARLY GROWTH of continuous welded rail, followed by a more rapid climb, is illustrated by this chart which is based on figures compiled and published by the Committee on Continuous Welded Rail of the AREA. Figures from at least two large railroads are not included in the chart for the past several years.

HANDLING, LAYING AND MAINTAINING

Welded rail: Practices are diverse

By MERWIN H. DICK,
Engineering Editor

Track engineers agree unanimously that continuous welded rail produces economies in track maintenance. However, there are wide differences of opinion among them regarding the extent of the savings and also about many points having to do with handling and laying the welded strings and the maintenance of CWR track.

In the matter of savings, estimates of top engineering officers vary anywhere between $198 and $1,200 per mile per year. Among other areas of non-agreement, most roads prefer to lay the long strings on one side of the track at a time. A few insist, however, that there are advantages in using the so-called dual method in which the strings are laid on both sides simultaneously.

Another area in which there is non-agreement has to do with restrictions imposed on the use of CWR on curves. Still another is the manner of "destressing" CWR track, that is, the measures taken to reduce or eliminate the effect on the long strings of changes in temperature. Particularly striking are differences that exist in the policy of handling the rails displaced from track when CWR strings are laid.

These are some of the findings that came out of a study made by Railway Age on the approximate occasion of the 50th anniversary of continuous welded rail. No one knows exactly when it was that some track man, weary of the unending task of maintaining bolted track joints, decided, as an experiment, to eliminate the joints in a limited section of track by butt-welding the rails together. In so doing, this track man put himself in the position of accepting the risks involved in eliminating the joint gaps universally regarded as necessary to permit rails to expand and contract with changes in temperature.

Even though the exact date is not known on which this momentous step was first taken, available records indicate it was during the early '20s. But it wasn't until 1933 that an installation of butt-welds was made in open track with the goal of carefully observing the performance of the test section, including the savings produced in the cost of maintaining the jointless track.

● **Test installation on the D&H.** This early installation was made by Delaware & Hudson in its double-track mainline at Albany, N.Y. Since the installation could be seen from the road's general office building, one might almost assume that the chief engineer wanted to be able to keep the jointless track under his personal scrutiny from day to day, so anxious was he to observe its performance. This installation consisted of 0.28 mile of welded 130-pound rail in each of the main tracks. The welds were made by the so-called thermite process.

Encouraged by the performance of its initial test section, D&H made additional installations of CWR in subsequent years. While continuing to use the thermite method, the road became interested in the electric-flash method and began to use this process to an increasing extent.

Meanwhile, other roads, noting that the D&H had so far escaped disaster with its growing mileage of CWR track, became interested and began to make test installations of CWR. Many of these, however, were in tunnels where the effects of changes in temperature were minimized—for the fact is that track men continued to regard jointless track with deep suspicion. Many of them simply could not reconcile the idea of welding rails into continuous lengths with their engineering training

which taught that provision had to be made for expansion and contraction due to changes in temperature.

● **The turning point comes.** This suspicion is reflected in the slow growth of CWR for many years after the first test installations were made (see chart). But the turning point came in 1946. In that year, P.O. Ferris, chief engineer of the D&H, made an address before the New England Railroad Club which turned out to be a convincing report on the performance of his road's CWR after a number of winters and summers of service. The report included figures on the savings experience in maintaining the CWR sections compared with jointed track.

It was the savings that captured the attention of track engineers. That was an area where a meeting of the minds was assured. It was generally agreed in those days that from 70% to 75% of track labor was spent at rail joints. Problems in the joint area were the primary source of track unevenness and constituted the most important reason for resurfacing. Also, about 45% of rail renewal was required because of battered rail joints and drooped rail ends. When a joint was eliminated a lot of maintenance chores went with it. These included building up battered rail ends, changing out joint bars, periodic bolt tightening, joint oiling, correcting pumping joints, joint tamping and signal bond maintenance.

Thus, when track engineers were confronted with evidence that the forces generated in continuous rail by temperature changes could be contained, many of them were ready to begin making larger installations of CWR. But already nearly a quarter-century had passed since the first installation of welded rail. And it would be many years yet before use of CWR would became practically universal among the larger rail systems.

● **Diversity and progress.** Perhaps this situation has a bearing on the fact that a diversity of CWR practices now exists. As CWR was accepted as a regular practice by each new convert, the tendency was to adopt practices that were considered to be improvements over those in use on other roads. The inclination seemed to be to seek out the best practices in use on other roads but to improve on these where opportunities to do so become apparent. Thus, it might be said that the existence of divergent practices is actually evidence that progress in the technology of CWR is still taking place even 50 years after the first installation was made.

The existence of divergent practices should not be allowed to obscure the fact that there are areas where fairly uniform practices prevail. One is in the length of the strings. Today it is almost universal for the strings to consist of 37 39-foot rails, resulting in a length of 1,440 feet. It is also nearly universal for the strings to be produced by the electric-flash method at centrally located plants. Another area of uniformity is the hauling of the strings in rack cars accommodating 40 strings in either four tiers of 10 rails each or five tiers of eight rails each.

● **Variations in laying practice.** The divergent practices come into evidence after the strings reach the site of installation. The most striking difference is in the manner of laying. On the great majority of roads the long rails are unloaded two at a time, one on each side of the track, and then laid on one side at a time. This is a practice that had been universally followed when rail was put into the track in 39-foot lengths.

On the other hand, a few large roads, no more than three or four, make use of the dual method of laying the long strings. In this method, both long strings are not only unloaded simultaneously but are also laid in track at the same time.

Using special equipment devised to implement the dual method, two rail strings are unloaded at a time in the center of the track on rail cradles that hold the rails to a uniform 28-inch narrow gauge. Spikes and anchors are removed from existing running rails and the latter are lined out to a gauge of 93 inches for supporting special machines that prepare the tie-plate seats. New tie plates are placed and the rail strings are set on the plates and anchored.

The displaced materials are picked up the same day by a later work train. An interesting feature is that there is no new material on the ground when the gang arrives, and there is no scrap material on the ground when it leaves.

It is reported that the dual method makes possible the laying of 1.5 strings per on-track hour with a gang of 55 to 60 men.

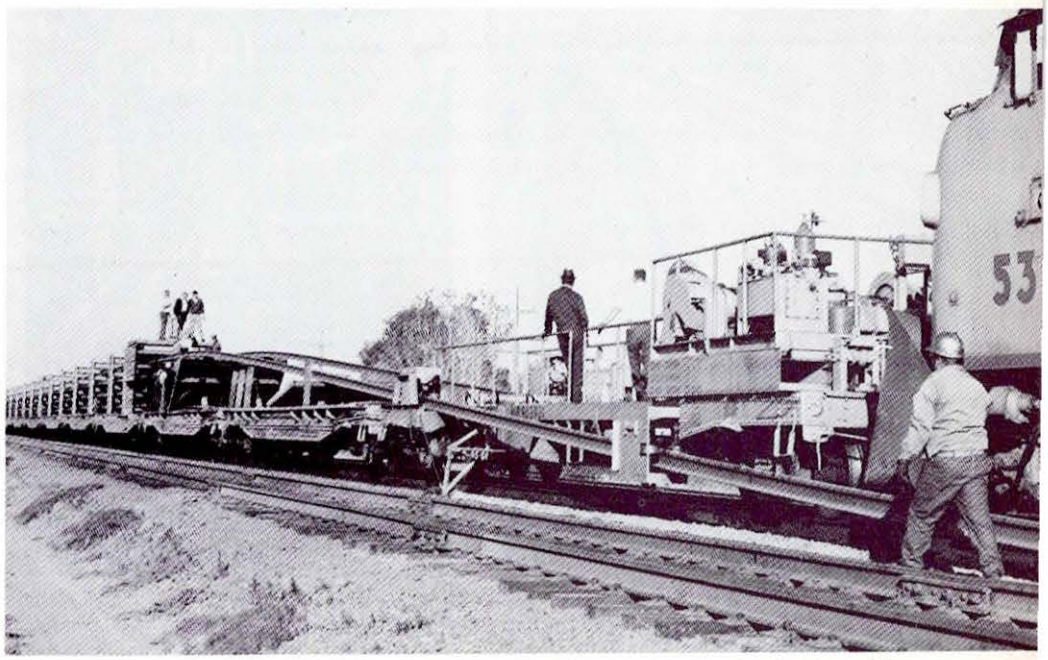
On those roads that lay the long strings on one side at a time, the practice generally is to shift the strings from the shoulder to the ties between the rails, using either a track-mounted or rubber-tired crane equipped with a threader device. In the final operation the strings are lifted and set on the tie plates, generally by use of a threader handled by a rubber-tired crane but sometimes by use of tongs handled by an on-track crane.

● **Wide variation in gang size.** The size of the gangs for laying rail on one side is an area where little uniformity exists. Answers to a questionnaire indicate that the size of such gangs ranges from 20 to 116 men, not including mechanics, truck drivers and cooks.

Two lines of reasoning can be seen at work in determining the size of rail-laying gangs. One is that, with smaller gangs, fewer man-hours are lost when track has to be cleared to allow trains to pass. On the other hand, with larger gangs, it can be reasoned that such gangs have the capability of laying more rail during the times the gang has use of the track.

Application of the second line of reasoning is illustrated by the experience of the road that uses 116-man gangs. The road reports that roughly one hour is required to open up the track and lay the first string. After that, each succeeding string can be laid in from 20 to 25 minutes.

On the majority of roads the rail-gang size ranges between 50 and 75 men. Average gang size is 55 men and-



CWR STRINGS are generally unloaded on the track shoulders two at a time by simply pushing the cars out from under them.

average production is one string per on-track hour.

● **Handling released rail.** Further differences in procedure are seen in the matter of picking up and handling displaced jointed rail at locations where long strings are laid. By far the most common practice is to disjoint the old rails as they are removed from the track. As in the past, these are then picked up individually by a crane and loaded into cars of a work train.

On the other hand, on a few roads the released rail is threaded out of the track without being disjointed and is later loaded onto rack cars in the form of jointed strings. In the loading operation, use is made of a pusher car to help force the jointed strings into the rail racks.

On at least one road, Southern, the jointed strings are taken to a central plant where, by use of special automated equipment, they are dismantled and prepared for cropping and welding.

On at least one other road, Union Pacific, the jointed strings are shipped directly to a site where they are to be relaid. Among other advantages, this practice assures there will be no problem in matching the rail ends.

One area in which there is a growing uniformity of practice is the welding of secondhand rail. For many years the butt-welding of rail was confined to new rail. Then a few roads that had welding plants on their properties began to weld some of their better released rail to keep the plant busy between delivery dates of new rail orders. In this practice the rails are cropped and welded into strings of approximately the same length as new rail. Many roads are now welding secondhand rail.

● **Anchorage practices.** Another point on which there is general agreement is that CWR rail requires a large number of rail anchors—about 1.7 times as many as jointed rail. There is, however, considerable variation in the anchor patterns used. Throughout the intermediate portions of the strings most roads follow the recommended practice of the AREA to the effect that "the anchorage of each rail at alternate ties. . .will provide adequate anchorage." However, a few railroads box-anchor every third tie in the intermediate portions.

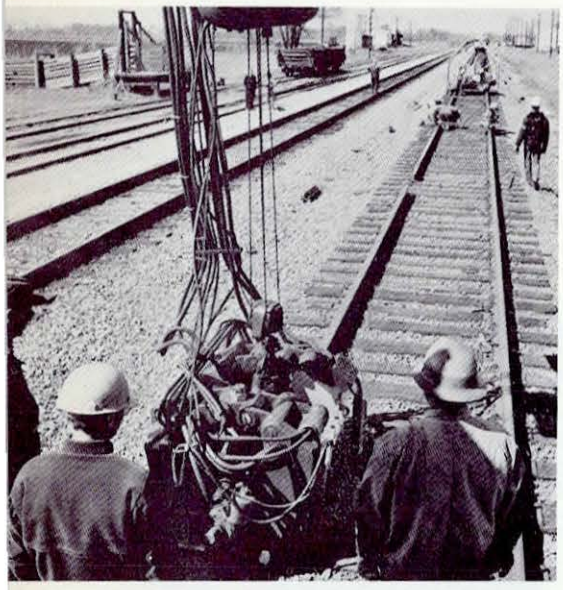
The big lack of uniformity in anchorage is in how the roads anchor the ends of the strings at bolted joints—where rail elongation and contraction really occur. Most railroads box-anchor every tie at these locations but there is wide variation in the distance the full box-anchoring is carried each way from the joint. On the roads that were surveyed this distance varies all the way from two and a half to eight rail lengths. The majority, however, box-anchor every tie for a distance of five rail lengths each way from the joint.

On a small number of roads, mostly those that box-anchor every third tie at intermediate portions, the practice is to box-anchor every other tie for five or six rail lengths at the ends and to apply so-called "tension" anchors on the remaining ties. These are anchors that are applied on the sides of the ties where they resist any tendency of the rail to pull away from the joint.

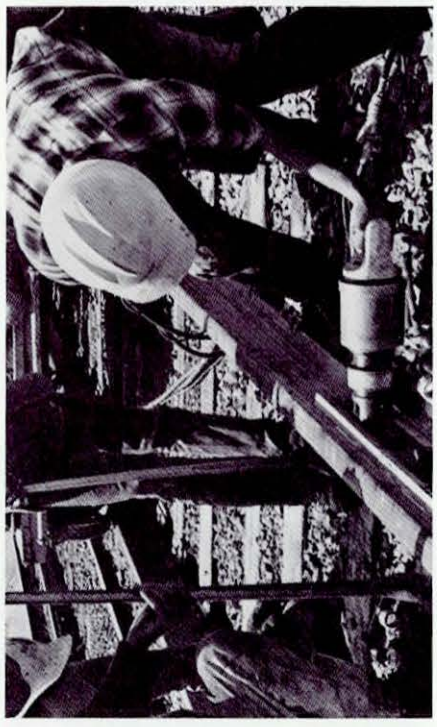
● **Destressing the long strings.** Another area where variations in practice are found is in the matter of "destressing" the long strings. In general, track men have learned to live with the changes that are expected to take place in the welded rail due to thermal effects. To a large extent the fears of buckled track and pull-aparts that existed in the early days of CWR have been replaced by a more confident attitude stemming from increased knowledge and improved technology.

But this doesn't mean that track men have in any sense relaxed their guard

IN DUAL METHOD of laying, used by only a small number of roads, an RMC Rail Guide Cart is used to deposit the strings to a narrow gauge on rail cradles placed between the running rails. They are later lined out to a gauge of 93 inches as part of the installation procedure.



IN-TRACK WELDING of rails is now being done on an out-of-face basis. This view shows such an operation on Santa Fe using Holland Company equipment. The flash-butt welding head is in the foreground.



RAIL JOINTS in CWR track are being increasingly made with structural adhesives and special fastenings. Here Huck fasteners are being applied to such a joint on Union Pacific, replacing temporary standard bolts.

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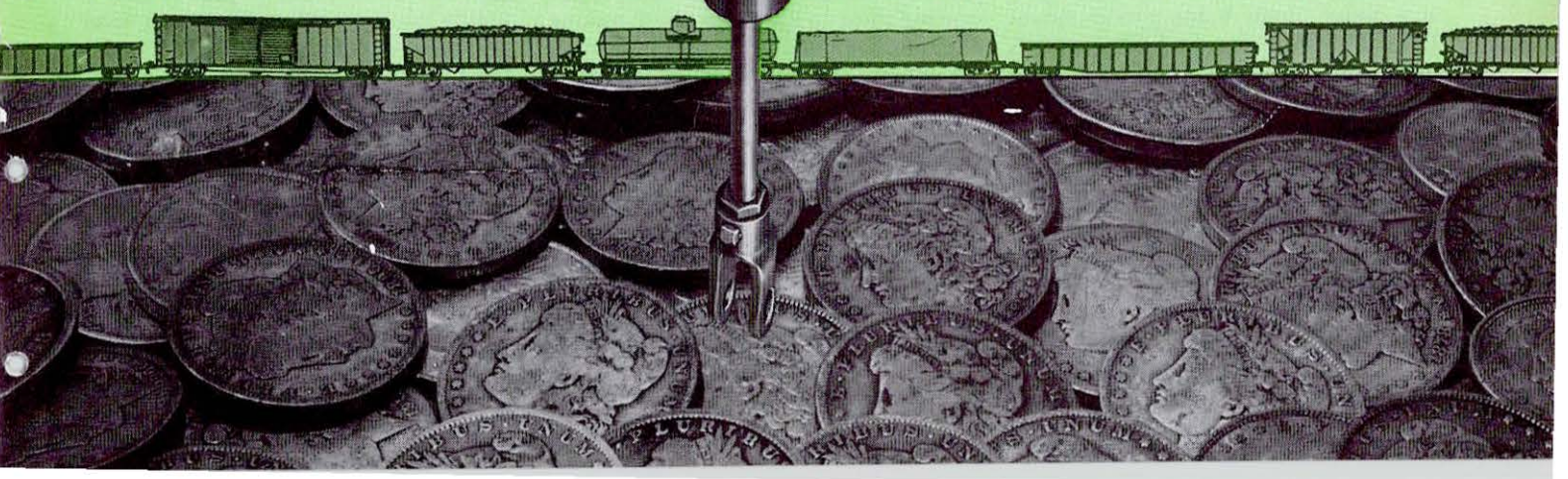

against the possibility of trouble developing in welded rail as a result of temperature changes. The survey shows that most railroads try to lay CWR when the temperature is within a specified range of the established regional mean temperature—or, the length may be adjusted to that which would prevail at the mean temperature. It is in the degree to which precautions are taken and in the methods used to make the length adjustments that variations are found.

WATER AND WHITEWASH

One road, for example, lays CWR when the temperature is as much as 30 degrees above the mean regional temperature, making no adjustments at the time for later contraction. So far as is known only a few roads, notably Union Pacific, make it a practice to cool rail when the laying temperature is above the mean. On this road cooling is done by spraying the newly-laid rails with cold water. On at least one other road the temperature of the rail is held down by whitewashing it to reflect the sun's heat.

Some roads that do not cool rail when the temperature is higher than the mean adjust the strings later by cutting out a piece and welding in a longer section.

Many railroads heat the CWR strings when rail is being laid below the mean regional temperature. This may be done by proprietary or railroad-built devices, although asbestos rope soaked in kerosene and set on fire is sometimes used. One road uses "Dutchmen" of various lengths between strings for the computed differences in length between the laying temperature and the mean temperature. The Dutchmen are then removed and the rails pulled together—stretched—with a hydraulic puller device to effect closure and permit the application of joint bars.

● **Differences on curves.** The use of CWR on curves is yet another area where there are differences in practice. There was some early speculation as to the advisability of using CWR on curves, and it was believed that heavy curve wear would so shorten the life of the rail that the economic advantages of joint elimination would be negated.

To a limited extent this belief persists today. Some roads restrict use of CWR on curves. One road, for example, limits use of CWR to curves of three degrees or less. Others have restrictions varying all the way from three degrees, 30 minutes up to eight degrees. The majority of roads, however, have no restrictions on use of CWR on curves. One road reports it has even laid CWR on curves sharper than 15 degrees.

Perhaps a factor in removing restrictions on the use of CWR on curves is the practice of transposing such rail on curves when it becomes worn. This practice is followed on some roads and doubtless will become more common.

● **Enter in-track welding.** A recent practice about which there is certain to be difference of opinion among track engineers is that of making rail butt-welds in track. Even in the earliest days of CWR, a few railroads made in-track welds on an experimental basis. Mostly these were made by hand, using the oxy-acetylene process. Later the thermite process came into use and is now widely employed for making in-track welds for connecting the long strings. In fact, most such connections are made by this method.

But the recent moves in the direction of in-track welding have a more ambitious objective—the conversion of existing jointed track into CWR track by out-of-face in-track welding on a production basis. For this purpose two methods are being made available. One of these is the flash-butt method which has been adapted to in-track welding by equipment recently introduced into this country by the Holland Co., Railweld Division (RA, May 8, p. 22).

The other is the oxy-acetylene pressure method which had been adapted to in-track welding by Railroad Maintenance & Construction, Inc., Irving, Tex. For many years the oxy-acetylene pressure method was extensively used for producing CWR strings at centrally-located plants. On a few railroads it is still used for this purpose.

At this writing, the Holland equipment has been in use for some weeks for making in-track welds in double-track main-line territory on Santa Fe. This road had earmarked two locations in Illinois, totalling about 13 miles in length, where rails were to be converted into CWR using the Holland equipment. These are locations where the body of the rail is still in good condition but the joint areas show some deterioration. Normally, such rail would be considered for renewal because of the joint condition. By cutting out the joint areas and welding the remaining rail in-track the railroad figures that many years will be added to the life of the rail in its present location.

At such locations the welding of the rails in-track can be justified if the cost of the welds compares favorably with the cost of taking up the rails, transporting them to a welding plant, making the welds, transporting them to a welding plant, making the welds, transporting the strings to the site of installation and laying them.

In its present in-track welding operations, Santa Fe is seeking to determine whether the economics are favorable. With the Holland equipment the road is using an organization of 11 men. "Based on our experience to date with the Holland equipment it appears that a goal of 60 welds per day is attainable," states W.S. Autrey, Santa Fe's chief engineer-system.

For welding in-track by the oxy-acetylene method, Santa Fe has earmarked two locations totalling about five miles in Texas. These are both in single-track territory and in both instances the body of the rail is capable of many years of service but the joint areas show considerable deterioration. At press time the in-track welding in Texas had gotten under way, but it is understood that the operation will involve use of an organization of 15 men and that it is expected to produce 50 to 60 finished welds per day.

● **Problems with insulated joints.** While in-track welding is certain to produce some heated discussions among track engineers there is another area where they are largely in agreement. That has to do with the fact that CWR had produced problems with insulated joints. The loads imposed by heavy cars and traffic generally and the stresses set up in the joints by adjoining CWR have combined to subject insulated joints to greater punishment than ever before. In some locations conditions are so severe as to cause insulated joints to fail within a matter of weeks.

To solve this problem railroads have joined with manufacturers in an effort to develop insulated joints better able to withstand the punishment. The objective has been to develop joints that will absorb the stresses without failing and without allowing slippage of the rails in the joint.

SPECIAL JOINTS ACT WELL

As a result of these efforts attention has become centered on insulated joints fabricated with structural adhesives and more often than not secured with high-strength bolts or Huck fasteners. In extensive tests under rigorous conditions of traffic and temperature variations, such joints are reported to have given a good account of themselves. These joints may be fabricated in the field or in the shop. In the latter case the joint is fabricated with two short sections of rail and is secured in the track by two field thermite welds.

Now that CWR is solidly entrenched as a means of eliminating joints in open track, some track engineers are casting their eyes at other locations where bolted joints are still used. Among these locations are the connections at frogs. A few railroads have started to use in-track welds to secure frogs to adjoining CWR, but the great majority of roads have shown little or no interest in this practice.

Thus, another area has been established where a divergence of opinion and practice is evident. This apparently will be the story for many years to come as railroads continue their efforts to achieve truly jointless track. ■

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People in the News

BESSEMER & LAKE ERIE.—A.D. Schadt, assistant general superintendent, Greenville, Pa., retired May 1, after 43 years of service.

BRITISH COLUMBIA HYDRO.—Donald J. Martin, manager rail operations, New Westminster, B.C., has retired after 25 years of service.

BUFFALO CREEK.—William E. Flight appointed superintendent.

BURLINGTON NORTHERN.—Taul Watanabe, executive director-international trade, appointed vice president-executive department for international commerce, with headquarters remaining in Seattle.

In the market development division, marketing department, **Ralph O. Avery** named assistant vice president, grain and grain products, succeeding **A.E. Michon,** named assistant vice president-corporate planning (RA, Apr. 24, p. 56). **C.H. Wulff** appointed director of pricing, grain and grain products, St. Paul. **G.D. Schlaeger** named director of planning, forest products, St. Paul.

In the transportation division, operating department, **J.J. Auge** named superintendent, transportation, St. Paul. In other operating department changes, **Robert J. Utterback,** assistant superintendent, North La Crosse, Wis., named terminal superintendent, St. Louis. Mr. Utterback's successor is **Lyle R. Burk. W.J. Condotta,** superintendent, transportation, St. Paul, named terminal superintendent, Kansas City, Mo.

In the purchasing and material department, **F.T. Devine** named material manager, Como material office, St. Paul, **R.L. Davis,** Vancouver, Wash., and **R.J. McGinnis,** Chicago.

In the resources development department, **E.E. Thurlow** named assistant vice president, minerals and land, St. Paul. **S.G. Merryman** appointed assistant vice president, timber and land, Seattle.

James E. Thompson named financial analyst, financial planning division, finance department, St. Paul.

CANADIAN NATIONAL.—R.A. Walker, director, accident prevention and safety, Montreal, appointed deputy chief of transportation, assuming the responsibilities of **C.F. Armstrong,** now on special assignment.

J.A. Villeneuve appointed regional manager, public relations, St. Lawrence Region, Montreal.

Z.L. Szeliski, assistant engineer of bridges and structures, appointed engineer of structures design—system, Montreal.

R.M. Veenis, manager, Southwestern Ontario area, London, Ont., appointed chief of motive power and car equipment-system, Montreal, succeeding **L.S. McGregor,** appointed special assistant for new passenger car development (RA, May 29, p. 72).

Taul Watanabe
BN

Albert W. Dudley, Jr.
CSS&SB

CANADIAN PACIFIC.—G.T. Brown appointed commission rate officer, Montreal. He will be responsible for railway traffic subjects before the Canadian Transport Commission and the Interstate Commerce Commission.

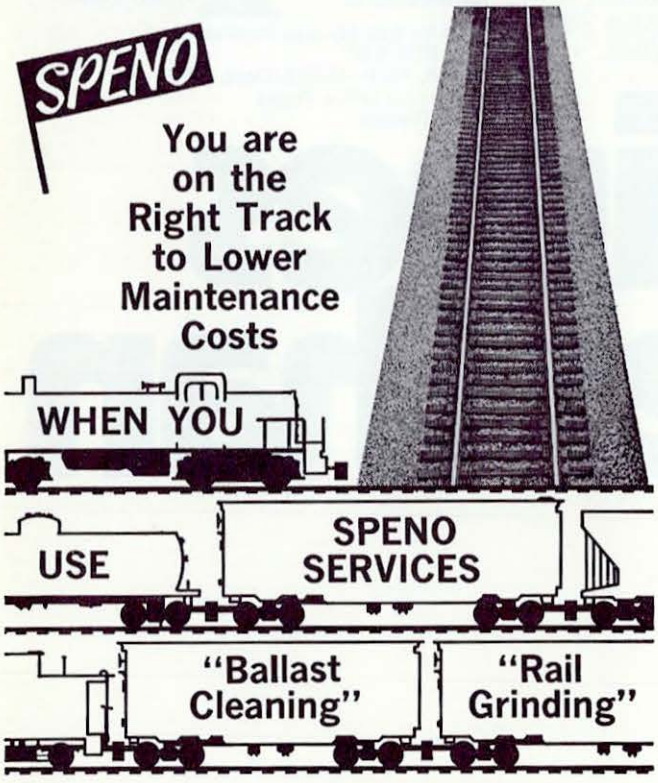
E.W. Purssell appointed assistant superintendent, Laurentian Division, Montreal, succeeding **L.G. Laramee,** retired.

P.E. Carriere appointed manager, linguistic services, reporting to the vice president administration, Montreal.

Dr. W.L. May appointed chief of medical services, succeeding **Dr. G. Earle Wight,** who retired April 30.

CHESAPEAKE & OHIO/BALTIMORE & OHIO.—James B. McCahey, Jr., president and general manager, **Chicago South Shore & South Bend,** Michigan City, Ind., elected vice president, C&O/B&O, cleveland.

Doyle S. Morris and **Frederick W. Doo-**



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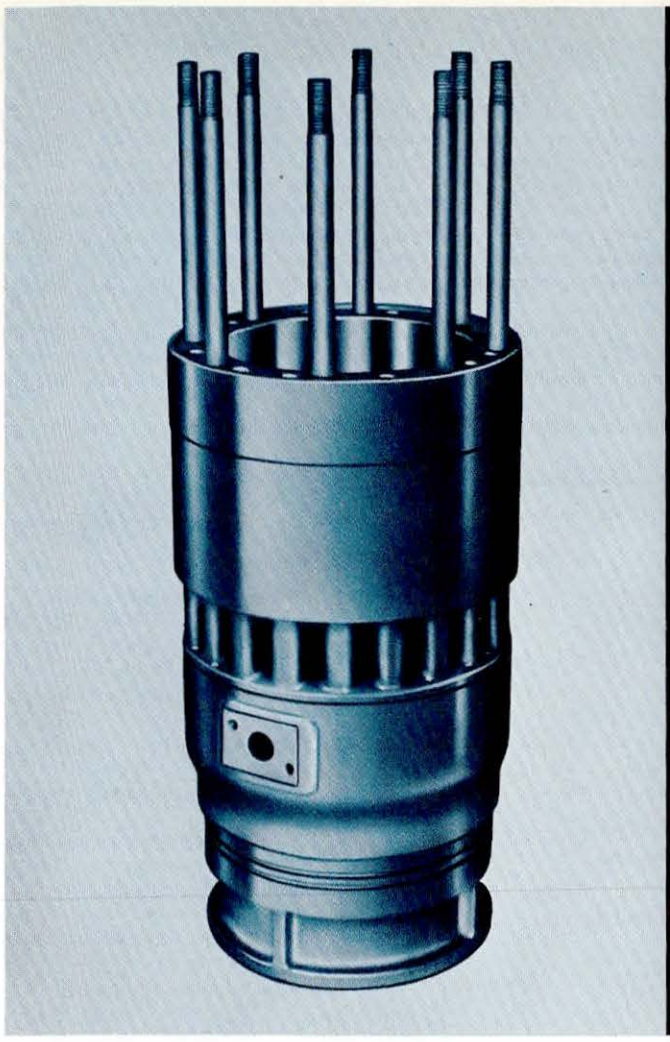

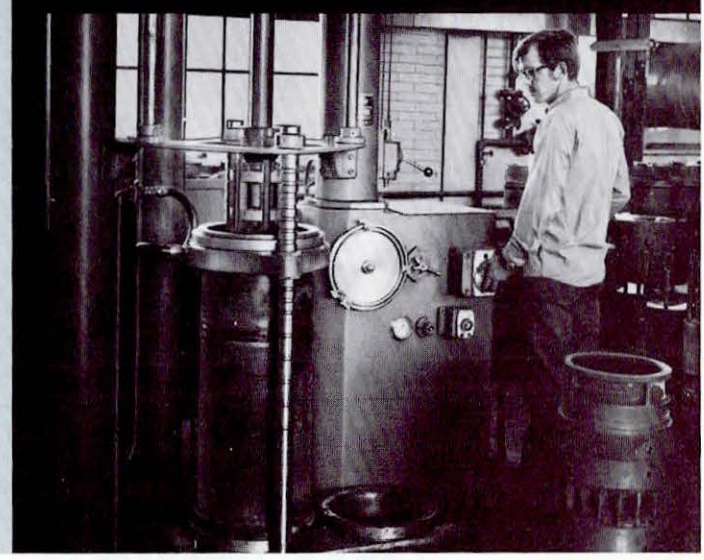

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little, Jr., general solicitors, elected general counsel. **William R. Althans,** general counsel, retired May 3 and has returned to the private practice of law. **Allan F. Schmalzriedt** and **John L. Rogers, Jr.,** appointed general solicitors at Baltimore and Cleveland, respectively. Mr. Schmalzriedt was assistant general counsel, Detroit, and Mr. Rogers was general attorney, Baltimore.

Bruce G. Lawler, deputy comptroller, elected comptroller, with headquarters as before at Baltimore, succeeding **Robert L. Hintz,** appointed assistant to the president.

CHICAGO & EASTERN ILLINOIS.—J.K. Wesley named assistant vice president-industrial development, St. Louis. He holds the same position with **Missouri Pacific.**

CHICAGO & NORTH WESTERN.—Edward E. Harney, general sales manager-north central states area, named to the newly created position of director of sales.

James R. Macdonald appointed director of public affairs. Mr. Macdonald, formerly director of public relations, **Northwest Industries, Inc.,** will be in charge of public relations and advertising, succeeding **F.V. Koval,** who retires at the end of 1972 after more than 29 years' service. Mr. Koval will continue as director of public relations in a consulting capacity until his retirement.

CHICAGO SOUTH SHORE & SOUTH BEND.—Albert W. Dudley, Jr. elected president and director. Mr. Dudley, formerly manager of operations planning, **Chesapeake & Ohio/Baltimore & Ohio,** Richmond, Va., succeeds **James B. McCahey,** appointed vice president, **C&O/B&O.**

DENVER & RIO GRANDE WESTERN.—J.J. Martin appointed national account executive, Denver. Named regional managers are **C.E. Mills,** San Francisco; **R.E. Port,** Sacramento, Calif.; **W.P. Menard,** Cincinnati. New district managers: **L.J. Poelstra,** Oakland, Calif.; **R.A. Hansen,** Sacramento; **A.L. Thiessen,** Portland, Ore.; **D.J. Leffingwell,** Detroit. **E.H. Nelson,** district manager, sales and development, Detroit, retired Apr. 30 after 34 years' service.

Leonard J. Bernstein named director-passenger and dining car services, Denver, to succeed **Francis E. Long,** passenger traffic manager, who retired May 31 after 50 years of service.

DETROIT & TOLEDO SHORE LINE.—C.J. McPhail elected vice president and general manager.

DULUTH, MISSABE & IRON RANGE.—Merrill C. Nolden, assistant superintendent, Iron, Minn., named superintendent, Proctor, Minn., to succeed **E.W. Anderson,** who retired May 1 after more than 34 years' service.

ERIE LACKAWANNA.—A.J. Batista appointed assistant general freight agent, Hoboken, N.J. **John A. Sees** named chief of tariff bureau, Hoboken.

Ronald H. Young appointed district sales manager, Portland, Ore., succeeding **Dale H. Moren,** transferred to Minneapolis, Minn., to replace **Carl P. Underwood,** who retired March 31. **Donald G. Raymus** appointed assistant district sales manager, Pittsburgh.

D.J. McBride appointed terminal storekeeper, Hoboken, N.J. **E.F. Keenan,** division storekeeper, Hoboken, transferred to Secaucus, N.J.

Robert M. Rockenfield, coal freight agent, Pittsburgh, retired March 31.

ERIE LACKAWANNA/DELAWARE & HUDSON.—Joseph R. Neikirk, vice president-operations, Cleveland, elected senior vice president of both roads, with responsibility for the operating and traffic departments.

GULF, MOBILE & OHIO.—David F. McCullough, assistant freight traffic manager, New Orleans, La., retired after 52 years of railroad service, 33 being with the GM&O.

ILLINOIS CENTRAL.—Wallace Hein appointed manager special equipment-automotive, Southfield, Mich.

INTERSTATE COMMERCE COMMISSION.—Laurence K. Walrath and **Donald L. Jackson** will retire as members of the ICC on June 30. **John W. Bush** replaced Commissioner Walrath on May 15 as Chairman of Division 2 (Rates).

LOUISVILLE & NASHVILLE.—Richard D. Sanborn, Jr., special assistant to president, **Seaboard Coast Line,** also named special assistant to president, **L&N.** He will have offices in Louisville and Jacksonville, Fla.

J.E. Nall, director of sales, Louisville, appointed assistant vice president-sales. **E.H. Tucker,** sales representative, New York, named assistant district sales manager.

T. Leslie Smith, director of marketing

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research, named assistant vice president-marketing. **Raymond K. Wilson,** assistant director of marketing research, succeeds Mr. Smith, and in turn is succeeded by **Robert C. Becker. J.E. McDaniel** and **A.C. Frerman** named to the newly created positions of directors of marketing. **R.E. Morris, Jr.** and **R.W. Jones, Jr.,** become managers-pricing. Named to the newly established positions of assistant managers-pricing are **D.J. Stier, W.K. Rutledge, J.R. Reese, P.B. Schaefer, R.K. Lewis, C.R. Spitznagal, W.M. Wadsworth, H.W. Gettelfinger, M.L. Bright. C.L. Heisler** named to the new position of assistant to director of marketing research. **S.E. Mossholder** appointed research analyst.

MILWAUKEE.—**F.B. Cederholm,** assistant superintendent, Milwaukee division, Milwaukee, named superintendent of transportation, Tacoma, Wash., to succeed the late **R.P. Huntsman. J.A. Wosinski,** assistant to the superintendent of transportation, Tacoma, appointed assistant superintendent of transportation there.

Willard K. Peterson, superintendent, Iowa, Minnesota and Dakota division, Austin, Minn., appointed assistant to general manager of operations, Chicago. Mr. Peterson's successor is **William F. Bannon,** formerly vice president and general manager, **St. Paul Union Depot Co.** and **Minnesota Transfer Ry. Co.,** St. Paul.

Robert M. Mortenson, district manager of sales, Duluth, Minn., transferred to Minneapolis, to succeed **Dean W. Cooksy,** named regional manager of sales, San Francisco (RA, Apr. 24, p. 57). **Reider O. Hansen,** assistant to regional manager of sales, Minneapolis, succeeds Mr. Mortenson.

Russell R. Brown, general superintendent, Milwaukee, Wis., retired May 31 after 38 years' service.

MISSOURI-KANSAS-TEXAS.—**Robert D. Roccia,** sales representative, Pittsburgh, promoted to sales manager, Philadelphia, succeeding **Thomas J. Ogden,** resigned.

George J. Elking appointed assistant general rate manager, St. Louis, replacing **B.G. Stolte,** retired. **Carl W. Holem** promoted to assistant rate manager, St. Louis, succeeding **Harry V. Svatek,** promoted to rate manager, replacing Mr. Elking.

MISSOURI PACIFIC.—**Harry E. Hammer,** assistant to the president-public relations, named assistant vice president-public relations and advertising.

MISSOURI PACIFIC-TEXAS & PACIFIC.—**J.K. Wesley,** director of industrial development, named assistant vice president-industrial development, St. Louis, to succeed **E. Smith Reed,** who retired Feb. 29 after more than 26 years' service.

Willard B. Gay, assistant regional sales manager, San Francisco, named regional sales manager, Pacific Region, San Francisco, to succeed **William J. Siering,** assistant vice president-sales, Pacific Region, who retired after 49 years of service. **Garland F. Bond** and **R.C. Kozlow** named district sales managers, San Francisco and Washington, D.C., respectively. **Hubert L. Southerland** and **Raleigh J. Sheffield, Jr.** became assistant district sales managers, Memphis and Kansas City, Mo., respectively. **Walter R. Lewis** appointed sales manager, Oklahoma City, Okla.; **Howard W. Hillson,** Louisville; **W.W. Artt,** Shreveport; **W.F. Howell,** El Dorado, Ark.; **L.D. Wood,** Sacramento, Calif. **Robert D. Schuster** named assistant sales manager, Davenport, Iowa. **John R. Colvin** named general freight agent, St. Louis. **A.W. Choi** appointed Korean traffic consultant, Seoul, Korea. **Charles W. Watkins,** general agent, Memphis, retired Feb. 29.

NORFOLK & WESTERN.—**L.A. Durham, Jr.,** chief engineer, Roanoke, on June 1 became head of the engineering department, succeeding **C.G. Hammond, Jr.,** assistant vice president-engineering, who has been named assistant vice president-staff, public affairs department. In his new position, Mr. Hammond will devote his efforts to the field of ecology.

Richard W. Kienle and **Walter C. Dissen,** assistant general solicitors, named general attorneys at Roanoke and Cleveland, respectively. **James C. Bishop, Jr.,** and **Ronald W. Moore,** assistant general attorneys, promoted to assistant general solicitors, Roanoke. **Peter J. Hunter, Jr.,** solicitor, appointed assistant general attorney, Roanoke.

NORFOLK SOUTHERN.—**J.B. Davis, Jr.,** assistant chief engineer, Raleigh, N.C., appointed assistant to vice president-operations. **H.A. Shamblin,** engineer-structures, promoted to assistant chief engineer, succeeding Mr. Davis. **L.M. Kerns,** junior engineer, promoted to office engineer.

PENN CENTRAL.—**Edward D. Laird,** master mechanic, White Plains, N.Y., appointed master mechanic, New England Division, New Haven, Conn. He will be in charge of maintenance of locomotives and cars in Connecticut, western Massachusetts and eastern New York.

W. Edward Whitney, general car foreman, Grand Central Terminal, appointed master mechanic, Metropolitan Region.

Dr. Joseph W. Simpson appointed director-medical services, Philadelphia.

RICHMOND, FREDERICKSBURG & POTOMAC.—**John T. Baylor,** assistant to comptroller, appointed assistant comptroller. **William T. Guthrow,** manager-systems, appointed manager-systems and data processing.

ROCK ISLAND MOTOR TRANSIT CO.—**Don L. Schadegg,** terminal manager, Omaha, named assistant director, sales and traffic, Des Moines, Iowa.

SANTA FE.—**W. John Swartz,** assistant vice president-personnel, named assistant vice president-executive department, Chicago.

Chris A. Bruskas, office manager for the vice president-traffic, named administrative assistant to vice president-information systems, Chicago.

Philip G. Modica, analyst, traffic department, Chicago, appointed director, Far East sales, Tokyo, Japan.

SEABOARD COAST LINE.—**E.H. Durham,** assistant vice president-freight traffic, Jacksonville, appointed assistant vice president-sales. **T.R. Cheney,** manager merchandise service, Jacksonville, appointed manager marketing research there.

SOO LINE.—The Accounting Department has been reorganized under three directors who report to the vice president, accounting. **Harold J. Ness** named director of financial analysis; **James F. Johnson,** director of ac-

(Continued on page 54)

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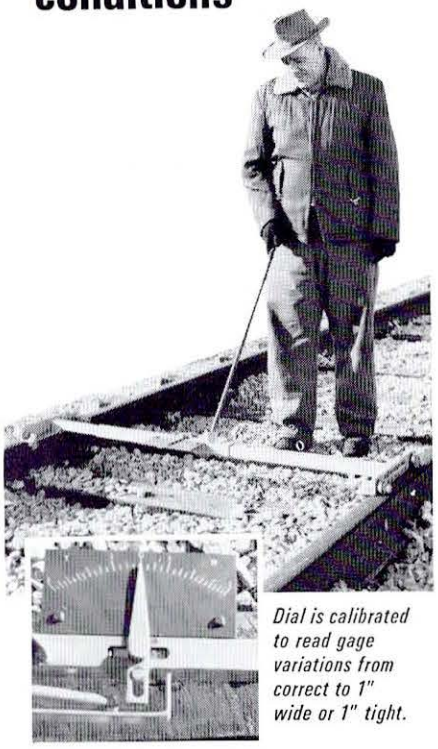

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All railroad wheels may look the same. They are all round and conform to a specified size and shape. But there is a difference in how they perform—how far they travel without maintenance—how many trouble-free miles they deliver. If there isn't any difference, Edgewater is doing a lot of process quality checking and meticulous inspecting for nothing. We don't think so. For that's what we believe in.

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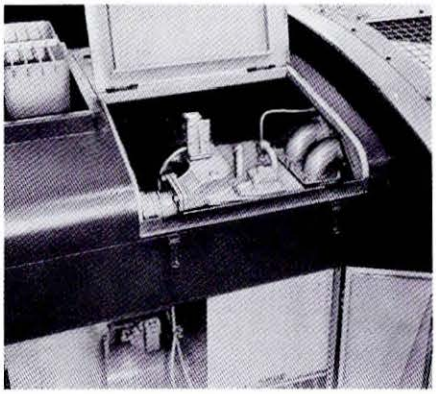

Fluid amplifier simplifies diesel cooling system

A fluid amplifier, introduced commercially for the first time in locomotives, has been adopted as standard in the cooling systems of all General Electric locomotives. This solid-state pneumatic-hydraulic system features two proportional diverting valves, two pilot valves and a thermostatic valve which combine to regulate the flow and temperature of up to 1,000 gallons of cooling water per minute. Because there are virtually no moving parts there is no need for an outside energy source; there are an increase in reliability and a decrease in maintenance. The dry radiator system has been retained with no water in the cores until its temperature exceeds 165 deg F. This had already made unnecessary such components as radiator shutters, air cylinders and the associated thermostatic controls.

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A Knopp, Inc., voltage tester especially designed for detecting electrical potential between third rail and ground rails on high-voltage, electrified transit systems can span a distance of four feet. The tester can be used on either AC or DC over a range up to 1,500 volts. The instrument housing, including its hand grip and the prod attached to the third rail, is 20 inches long. A dual-neon-lamp principle provides safety protection to the operator. Another safety feature is the limitation of current through the test circuit to less than three milliamperes at 1,500 volts. The neon indicating lamps are mounted in special shielded cavities within the instrument housing. This means the neon-glow indication can be seen even under the most adverse conditions of bright, direct sunlight on the instrument during tests.

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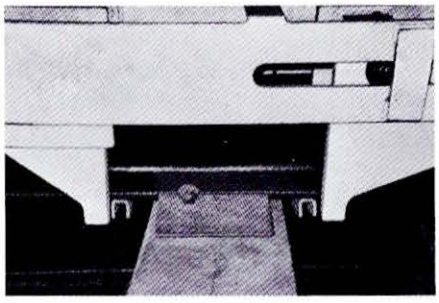

Installed rail anchors tightened by machine

A new Railway Maintenance Corp. machine designated the RMC Anchor Tightener uses a 12,000-lb force for squeezing anchors back into position after they have worked loose in service. Operated by one man, the Anchor Tightener is a self-propelled unit which includes an anchor-tightening device over each rail. With the machine in position over a tie, the anchor-squeezing mechanisms are lowered to where they squeeze the anchors tightly against the tie. The machine is designed to operate with all standard types of rail anchors using its 2,000-lb hydraulic system.

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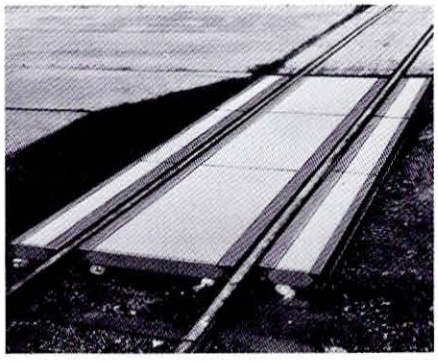

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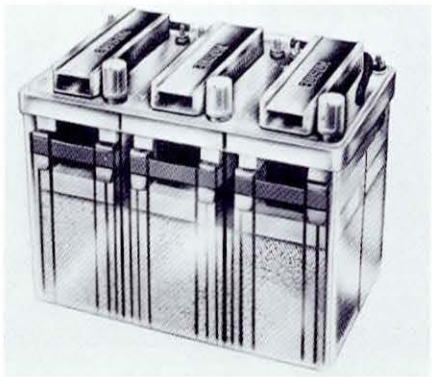

Add-water, air-depolarized batteries now available

A new line of Edison Battery add-water, air-depolarized Carbonaire batteries known as type ST, are housed in tinted, transparent acrylic cases which permit the user to determine visually when battery capacity is exhausted. No special filling devices or measuring methods are required to add the correct amount of water. Type ST Carbonaire is presently manufactured in 2-cell and 3-cell models.

All inter-cell connections are made externally, rather than with the usual factory pre-wired internal connections. The user can inter-connect the individual cells, in the field, either in series or parallel depending on the service application. This flexibility gives the user the option of stocking only 2 types of batteries in place of the 4 types which may be required for various services. All terminals and nuts are standard AAR specification. Batteries may also be ordered pre-connected at the factory.

The ST-2 (2-cell model) provides 2.5 volts and a nominal capacity of 1,000 ampere hours when series-connected; in parallel, it is a 1.25 volt, 2,000 ampere hour batter. The ST-3 (3-cell model) connected in series is a 3.75 volt battery with a nominal 1,000 a.h. capacity; in parallel, it is a 1.25 volt, 3,000 a.h. battery.

Continuous current carrying capacities range from .5 amp to 3.75 amp depending on how the batteries are connected and the operating temperatures. To prevent dirt and dust from accumulating on the carbon surface during service life, each carbon has a specially designed carbon shield lined with a filtering material. Screw type filler caps are used to greatly reduce the possibility of splashing of electrolyte during transportation and handling of activated batteries. For ease of handling, there is a permanent, built-in carrying handle on each battery.

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Aluminum shield protects 'phone cable from moisture

A new smooth-shield Anaconda Wire & Cable telephone cable known as Sealmetic is said to offer maximum protection against moisture permeation and moisture migration between shield and jacket. Additional benefits include outstanding flexibility, added strength and improved bonding harness hook-up.

The smooth aluminum shield of the new cable contains a special copolymer bonded to both sides. This protects the aluminum and enables subsequent bonding of the coated shield to the high-molecular-weight, polyethylene jacket resulting in a unitized shield/jacket combination. The smooth, longitudinally-applied shield is overlapped. The overlap is hermetically sealed. The bonded construction of the unitized shield/jacket permits small radius bends without kinking, distortion or other impairment of the shield system.

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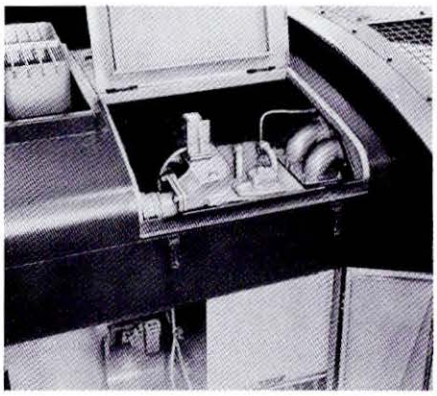


Fluid amplifier simplifies diesel cooling system

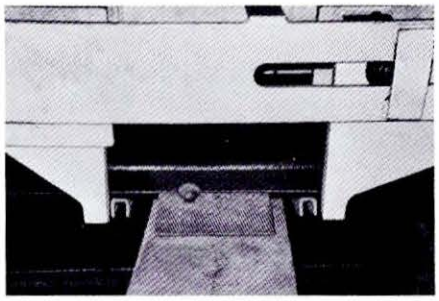
A fluid amplifier, introduced commercially for the first time in locomotives, has been adopted as standard in the cooling systems of all General Electric locomotives. This solid-state pneumatic-hydraulic system features two proportional diverting valves, two pilot valves and a thermostatic valve which combine to regulate the flow and temperature of up to 1,000 gallons of cooling water per minute. Because there are virtually no moving parts there is no need for an outside energy source; there are an increase in reliability and a decrease in maintenance. The dry radiator system has been retained with no water in the cores until its temperature exceeds 165 deg F. This had already made unnecessary such components as radiator shutters, air cylinders and the associated thermostatic controls.

Circle 60 on reader service card

Special voltage tester is for electrified transit systems

A Knopp, Inc., voltage tester especially designed for detecting electrical potential between third rail and ground rails on high-voltage, electrified transit systems can span a distance of four feet. The tester can be used on either AC or DC over a range up to 1,500 volts. The instrument housing, including its hand grip and the prod attached to the third rail, is 20 inches long. A dual-neon-lamp principle provides safety protection to the operator. Another safety feature is the limitation of current through the test circuit to less than three milliamperes at 1,500 volts. The neon indicating lamps are mounted in special shielded cavities within the instrument housing. This means the neon-glow indication can be seen even under the most adverse conditions of bright, direct sunlight on the instrument during tests.

Circle 61 on reader service card



Installed rail anchors tightened by machine

A new Railway Maintenance Corp. machine designated the RMC Anchor Tightener uses a 12,000-lb force for squeezing anchors back into position after they have worked loose in service. Operated by one man, the Anchor Tightener is a self-propelled unit which includes an anchor-tightening device over each rail. With the machine in position over a tie, the anchor-squeezing mechanisms are lowered to where they squeeze the anchors tightly against the tie. The machine is designed to operate with all standard types of rail anchors using its 2,000-lb hydraulic system.

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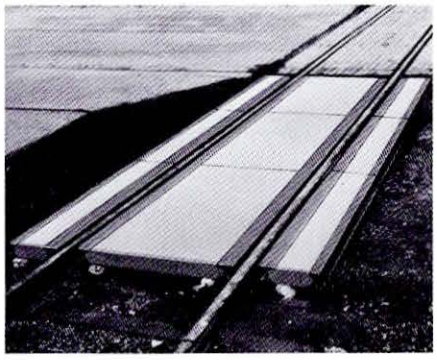

Crossing slabs are precast, reinforced concrete

Railroad grade-crossing slabs, patented and manufactured in the United States under the trade name of Fab-RaCast, are railbound, reinforced precast concrete. The slabs are uniform in height and are said to be suitable for use in all conventional tracks. The slabs employ a totally new flotation concept and are positioned to the correct elevation on self-adjusting mortar bags and secured to the running rails with specially designed hardware. The manufacturer advises that its pilot plant will become operational in early summer of this year. He further states that the slabs require no advance track preparation, no pre-spacing of ties or rail joints, and no special shims. These slabs are said to

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be in extensive use on European railroads for ten years.

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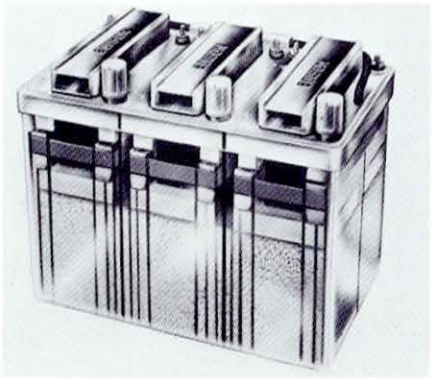
Transmission designed specifically for motor graders

A direct-drive, power-shift transmission, designed and built by Caterpillar specifically for motor graders, is now offered on the No. 140 Motor Grader. It incorporates a combination of an oil-type flywheel clutch and planetary transmission for positive, efficient operating characteristics. Six forward and six reverse speeds provide a full range of work and travel speeds. A single lever controls speed and direction changes for ease of operation. A foot-operated inching pedal facilitates close-quarter work. A built-in safety feature prevents machine movement if engine is started with transmission in gear.

Circle 64 on reader service card



Add-water, air-depolarized batteries now available

A new line of Edison Battery add-water, air-depolarized Carbonaire batteries known as type ST, are housed in tinted, transparent acrylic cases which permit the user to determine visually when battery capacity is exhausted. No special filling devices or measuring methods are required to add the correct amount of water. Type ST Carbonaire is presently manufactured in 2-cell and 3-cell models.

All inter-cell connections are made externally, rather than with the usual factory pre-wired internal connections. The user can inter-connect the individual cells, in the field, either in series or parallel depending on the service application. This flexibility gives the user the option of stocking only 2 types of batteries in place of the 4 types which may be required for various services. All terminals and nuts are standard AAR specification. Batteries may also be ordered pre-connected at the factory.

The ST-2 (2-cell model) provides 2.5 volts and a nominal capacity of 1,000 ampere hours when series-connected; in parallel, it is a 1.25 volt, 2,000 ampere hour batter. The ST-3 (3-cell model) connected in series is a 3.75 volt battery with a nominal 1,000 a.h. capacity; in parallel, it is a 1.25 volt, 3,000 a.h. battery.

Continuous current carrying capacities range from .5 amp to 3.75 amp depending on how the batteries are connected and the operating temperatures. To prevent dirt and dust from accumulating on the carbon surface during service life, each carbon has a specially designed carbon shield lined with a filtering material. Screw type filler caps are used to greatly reduce the possibility of splashing of electrolyte during transportation and handling of activated batteries. For ease of handling, there is a permanent, built-in carrying handle on each battery.

Circle 65 on reader service card

Aluminum shield protects 'phone cable from moisture

A new smooth-shield Anaconda Wire & Cable telephone cable known as Sealmetic is said to offer maximum protection against moisture permeation and moisture migration between shield and jacket. Additional benefits include outstanding flexibility, added strength and improved bonding harness hook-up.

The smooth aluminum shield of the new cable contains a special copolymer bonded to both sides. This protects the aluminum and enables subsequent bonding of the coated shield to the high-molecular-weight, polyethylene jacket resulting in a unitized shield/jacket combination. The smooth, longitudinally-applied shield is overlapped. The overlap is hermetically sealed. The bonded construction of the unitized shield/jacket permits small radius bends without kinking, distortion or other impairment of the shield system.

Splicing and termination are said to be accomplished quickly and easily using conventional tools. The shield and jacket are not separated for these operations, thus full benefits of the construction are retained.

Conductors of solid, uncoated annealed copper in 19, 22, 24 and 26 AWG sizes are insulated with virgin polypropylene, and the core is wrapped with a non-hygroscopic tape for mechanical protection and added dielectric strength.

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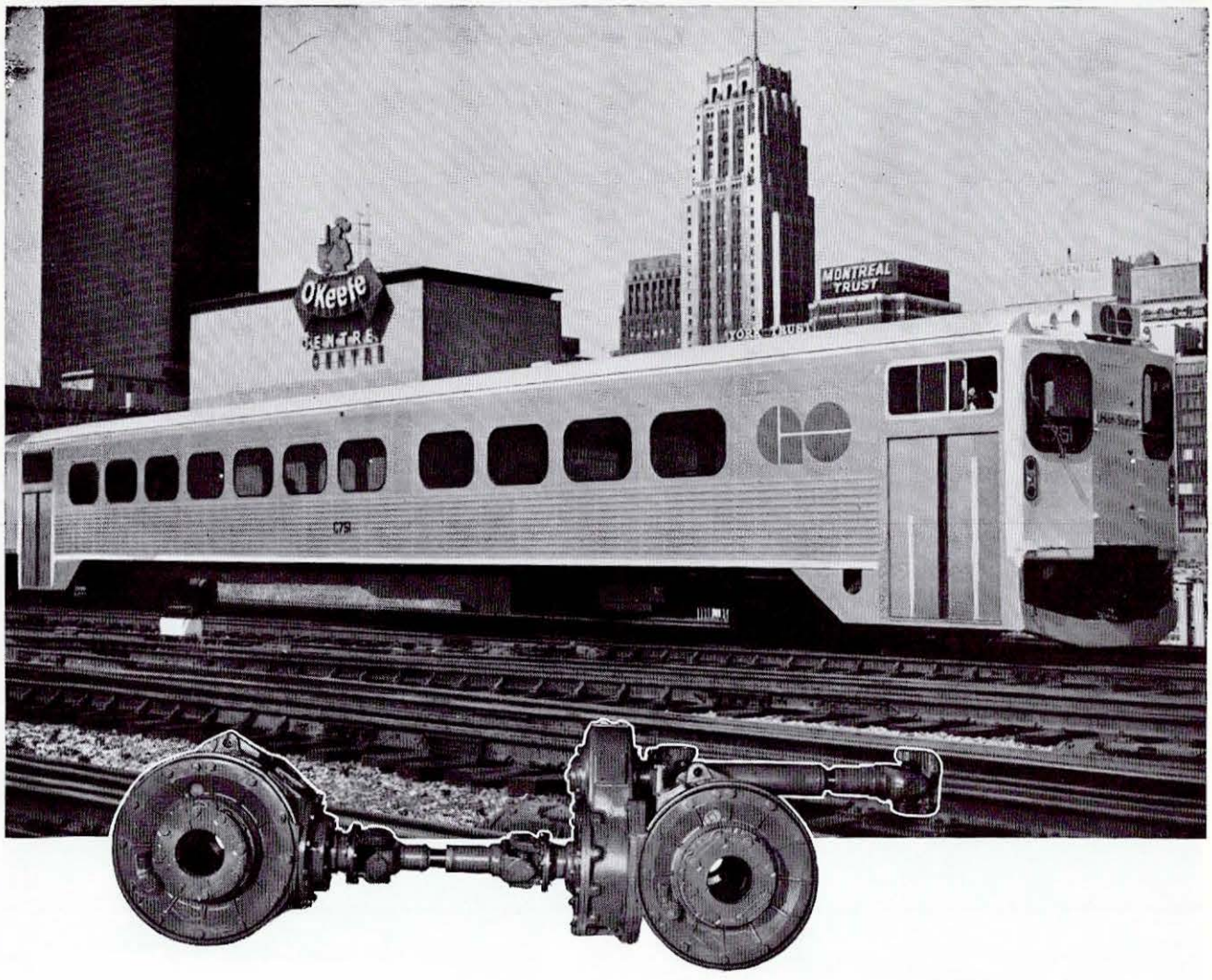
"Safety" Traction Drives: the power of the 70's



When the Government of Ontario wanted '70 power for their "GO" cars, they picked Drives, manufactured by "Safety" at New Haven, Conn. For rapid transit car users, Safety traction motor drives offer these innovations: no field adjustment necessary; full cushion mounting; slip-free drive; larger ring gear; less pinion offset; increased oil capacity; load tested at the factory. They add up to seven good reasons to specify "Safety."

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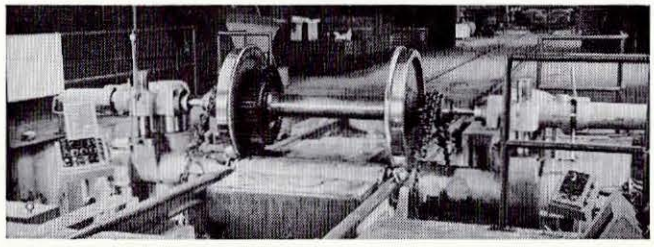
Circle 21 on coupon page 45

Continue to shape 'em up



How many times can you re-shape your rolling stock's wheels? Two or three times before they're shipped to the scrap pile?

Standard's Wheel Truing Machine can give you about 40% longer operating life from each wheel. Since it's a milling machine, it doesn't have to cut as deep as a lathe to true a wheel. So, each wheel can be re-shaped four or five times. That has to save you big bucks in the cost of re-purchasing and inventory.

instead of shipping 'em out

Saves you big dough in down time and labor, too. Because wheels can be trued quickly right on the car, as well as in single units.

How much of your rolling stock can a Standard Wheel Truing Machine handle? All of it . . . locomotives, box cars, flat cars, gondolas, mining cars, commuter cars and rapid transit cars. If it rolls on rails, Standard can help you keep it rolling for less.

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Circle 22 on coupon page 45

U36B/MATE combination rolls through Mulberry, Fla., en route to Tampa with a phosphate train. Later this year many of these trains will be powered by U36B/MATE/U36B consists when 10 existing single-end MATEs are augmented with 15 double-end MATEs which GE will soon be building.

MATEing time again for SCL

While two may be company and three a crowd in certain circles, Seaboard Coast Line will soon expand its MATE concept to involve three motive-power units per phosphate train from the present two—expecting performance to be better, and not worse. Last month SCL ordered 15 more MATE (Motors for Additional Tractive Effort) or companion power units from General Electric to add to the ten it already has in road service.

Each of the new units is designed to be operated between a pair of GE's U36B four-motor 3,600-hp locomotives. Existing road-service MATEs on SCL, delivered starting last year, are each teamed with an individual U36B. This means that the 3,600 horsepower produced by the diesel engine is, at low speeds, shared by eight traction motors (four on the U36B and four on the MATE). The new MATEs, which will be delivered beginning in August, are to divide the 7,200 horsepower output of two locomotives over 12 motors (eight on the U36Bs and four on the MATE).

With either arrangement, according to W. Thomas Rice, SCL chairman and president, the MATE units are useful in increasing the utilization and the flexibility of locomotives. The companion power units simplify the starting of tonnage trains and can also enhance their performance at somewhat higher speeds.

● **Weight on drivers.** While the SCL's road MATE differs to a degree from the ballasted "slug" units that many roads use in hump yard service, its basic function of getting added adhesive weight is the same. To date, SCL has based its entire MATE fleet in Florida's Bone Valley, the phosphate-mining area some 30 miles east of Tampa. There are dozens of mining and phosphate processing operations in this region which one SCL man describes as "a two-county switching yard."

Heavy cuts of cars gathered from these dispersed operations are assembled in tonnage trains which are then moved through to the Port of Tampa where they are rotary dumped into ocean vessels. The highly-automated dock operation unloads wet rock from open-top cars (of which SCL has just ordered an additional 130 from Bethlehem) and processed phosphate which moves in "flip-top" covered hoppers (RA, Sept. 23, 1968, p. 45).

The ten single-end (so-called) MATEs in service have proved popular with SCL mechanical and operating officers. Each U36B/MATE combination is replacing a pair of aging four-motor road switchers, with a simultaneous reduction in maintenance costs and an increase in reliability. In the mining area, SCL's six-motor units cannot traverse much of the trackage, making necessary the use of lighter, shorter-wheelbase units with four motors each. However, the U36B/MATE/U36B combinations which will be operating later this year will be the equivalent of a pair of six-motor units from a tractive-effort standpoint.

SCL already has 31 of its U36B units equipped for MATE operation. Each has a selector switch that sets it up for operation with either the single-end or double-end companion unit. To facilitate mine service switching, these road locomotives have also been fitted with the "fast start" option normally used on yard switchers. This feature is cut out when the unit is in normal road service with or without MATE.

● **Added fuel supply.** The MATE is ballasted to operate with minimum wheel slip and has four GE 752 traction motors and gearing to match the accompanying locomotive or locomotives. GE has estimated that elimination of an extra locomotive unit, through use of a MATE, can produce a 40% reduction in maintenance costs on drag applications. This comes about because there is no diesel engine, traction alternator or associated systems on the MATE since it receives traction current from the locomotive or locomotives with which it is coupled and joined by power and auxiliary current cables.

The MATE does have certain controls, wheel-slip detection, a sanding system, lights, safety appliances and motor cooling system. SCL has had its MATE units fitted with the same 3250-gallon fuel tank which it orders on the U36B locomotives. There is also a transfer pump, piping and interconnecting hose so fuel may be transferred to the companion locomotive anytime the combination is stopped. The MATE underframe (and consequently its length) is identical with the U36B. ■

Researchers aim at reducing diesel locomotive emissions

Remember the good old days when grade-schoolers would be handed an Audubon primer and then sent out into the meadows and forests to identify by sight and sound as many birds as possible? Well, times are changing—a point that was brought out all too clearly recently in a quiet suburban community north of Chicago. There, youngsters were handed Ringelmann smoke charts—not Audubon primers—and sent out to check exhaust emissions from locomotives passing through town.

That a plume of grey smoke from a locomotive stack might thrill a youngster more than the lonesome call of an elusive meadowlark is further evidence of growing public concern for the integrity of the environment. However, railroads—or more specifically, locomotives—really do not deserve the tremendous amount of surveillance they have been getting in recent years from both professional and amateur environmentalists. While the diesel-electric locomotive may not qualify for a gold halo so far as air-pollution control is concerned, it is still a lot cleaner and less harmful than most other motor vehicles moving passengers and freight.

Railroads, locomotive builders and fuel suppliers share with the public and public agencies a genuine concern for the environment. This point was brought out at the National Railroad Lubrication Council's annual meeting in Houston in May. T.A. Tennyson, assistant manager-maintenance engineering, Southern Pacific, informed council members of a month-and-a-half study conducted on the West Coast last year to determine the quality of emissions of four different locomotives. The study—jointly sponsored by the Association of American Railroads and the SP, Santa Fe and Union Pacific—was conducted at the Chevron Research Co.'s facilities in Richmond, Calif.

● **The last half-percent.** "While 99% of the exhaust gases from a locomotive are not considered to be polluting in nature, the remaining one-half percent is—and that's the part that is causing all the trouble," remarked Tennyson. "It's that very small percentage that we've got to be able to limit."

The locomotives selected for the study were:

—An EMD SD45, purchased by SP in 1966 and re-powered in 1970.

—An EMD SD45, also purchased by SP in 1966, re-ringed in 1969, and scheduled for shop repairs at the time of the study.

—An EMD GP38 equipped with a Roots-blown engine and owned less than one year by Santa Fe.

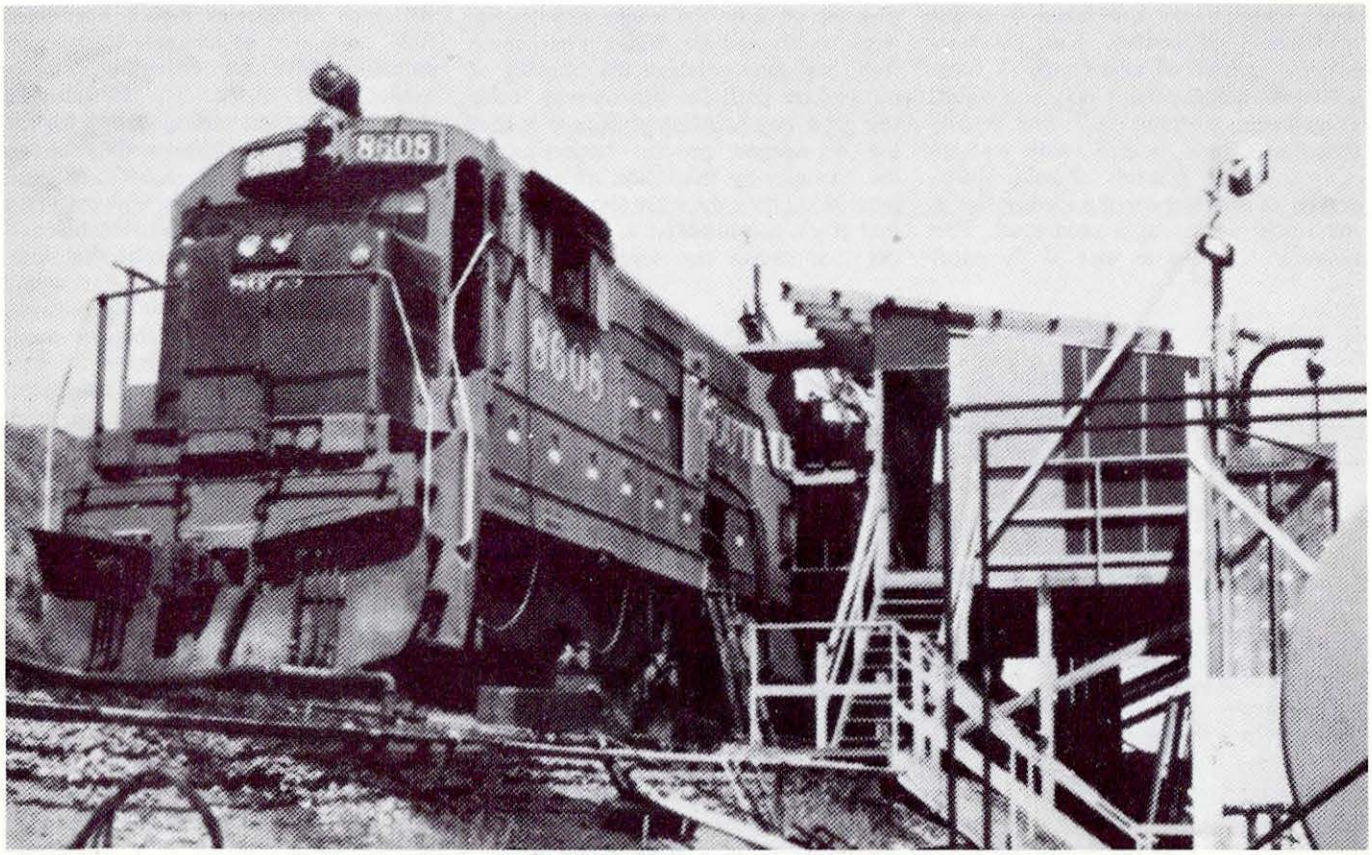
—A GE U33C, also SP-owned, tested both before and after engine maintenance.

On the basis of the battery of tests these particular units were subjected to, researchers were able to draw the following conclusions:

—Exhaust gas composition varies with the type of engine, method of air introduction and engine load.

—Physical condition of the engine will determine the amount of carbon monoxide, unburned hydrocarbons and oxides of nitrogen in the exhaust.

—As an engine's air supply is reduced, horsepower will also be reduced, while the concentration of carbon



Locomotive exhaust emissions study was conducted at the Chevron Research Co. facility overlooking San Francisco Bay.

monoxide will be increased.

—The three EMD 645 engines tested could meet the 1973 emission standards set by the state of California for highway diesel trucks, but would fail the 1975 standards for emissions of oxides of nitrogen and hydrocarbons; meanwhile, the GE FLD-16 would be unable to meet the requirements for either year, mainly because of a higher level of oxides of nitrogen. (Researchers were quick to point out, however, that the humidity factor at the test site was not accounted for in the measurements. Had it been, the GE engine probably would have passed the 1973 test.)

—All engines in the test could pass both year's standards for highway diesel trucks so far as concentration of carbon monoxide in emissions is concerned.

—Some of the analytical equipment, measuring techniques and methodology used in the tests have a high degree of reliability in measuring the three undesirable exhaust components.

● **Learn by testing.** Perhaps more than anything else, it was the establishment of standards of emissions for highway diesel trucks by the state of California that brought on the locomotive emissions study. Essentially, the co-sponsors of the study wanted to learn first-hand how locomotives might fare under similar regulations. Also, they wanted to develop some basic information of their own on exhaust constituents, the effects of the repair cycle on exhaust quality, and on performances of different locomotive designs.

Throughout the month-and-a-half study, special care was taken to assure consistency of testing. And, the tests ran the gamut of experiences a locomotive in actual service may encounter. Tennyson's account of the testing techniques used in the study was accompanied by a series of color slides, several of which showed a locomotive in the initial stages of a cold start. This mode is regarded as one of the most severe in which a locomotive will be operated.

The NRLC meeting, held in conjunction with the annual convention of the American Society of Lubrication Engineers, also featured a panel discussion on diesel locomotive smoke control. Participating in this portion of the program were Dr. Clark Miller, of Lubri-Zol Corp; R.D. Fleming, of the U.S. Bureau of Mines; W.K. Simpson, of EMD; and J.G. Hoffman, of GE.

● **Three smokes.** There are three types of smoke that a diesel engine will exhaust, Dr. Miller said. First of all, there is white smoke, an aerosol consisting of condensed moisture and unburned fuel particles. This smoke will "pass away," according to Dr. Miller, and is not a major pollution factor. There is blue smoke, too, caused by the burning in the combustion chamber of lubricants which get there mainly because of worn rings. It is not of major concern.

"Black smoke—the one containing unburned carbon particles—is the one we have to worry about," continued Dr. Miller. There are a number of alkali metals and alkaline-earth metals which, when added to the fuel, will act as smoke depressants. Barium, one of the alkaline-earth metals, seems to be the most effective, he said. Other elements, such as calcium, strontium, copper, magnesium and radium, are less effective, and, besides some of them are too expensive or too dangerous to use as depressants.

● **And three theories.** There are three theories on how the smoke depressants work, continued Dr. Miller. First, some feel they may catalyze the burning of the carbon particles and thereby lower the glow point. Another theory is that the depressants prevent formation of the particles by inhibition of dehydrogenation. Then, there are those who feel that it's a combination of both properties that causes the depressants to reduce smoke emissions. Dr. Miller believes the third theory is the most logical.

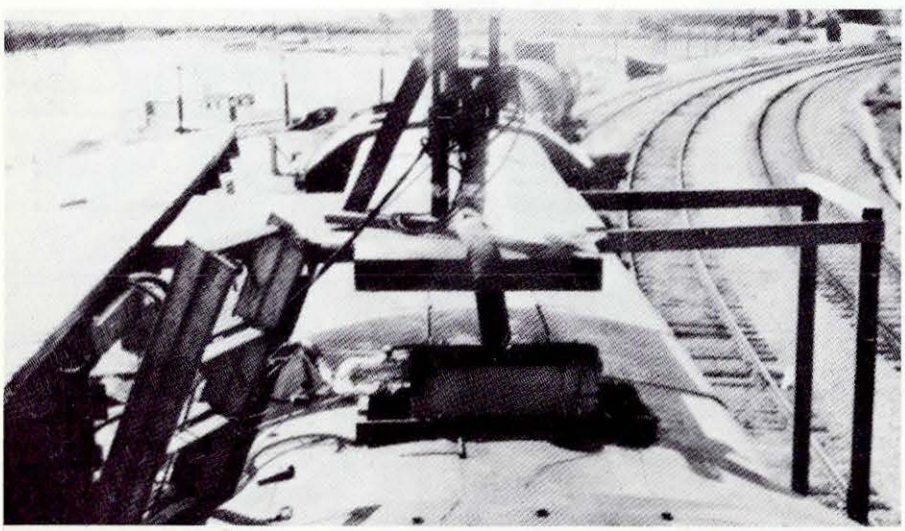
A review of the regulatory scene regarding pollution was presented by EMD's Simpson. He outlined the various Congressional investigations conducted prior to enactment of the Clean Air Act of 1970. Regulations enacted by a handful of states, including the "no visible smoke" ruling, were also discussed. There is a certain amount of confusion at the present time over what direction Federal involvement in locomotive emissions controls may take, Simpson added.

The major components of the diesel engine's exhaust, explained GE's J.G. Hoffman, are hydrocarbons, odor, nitrogen oxide, carbon monoxide and smoke. "Smoke, by itself, is more of an aesthetic nuisance than anything else," he said. "However, it is the combination of the smoke and odor that has led states to regulate very severely against the diesel engine."

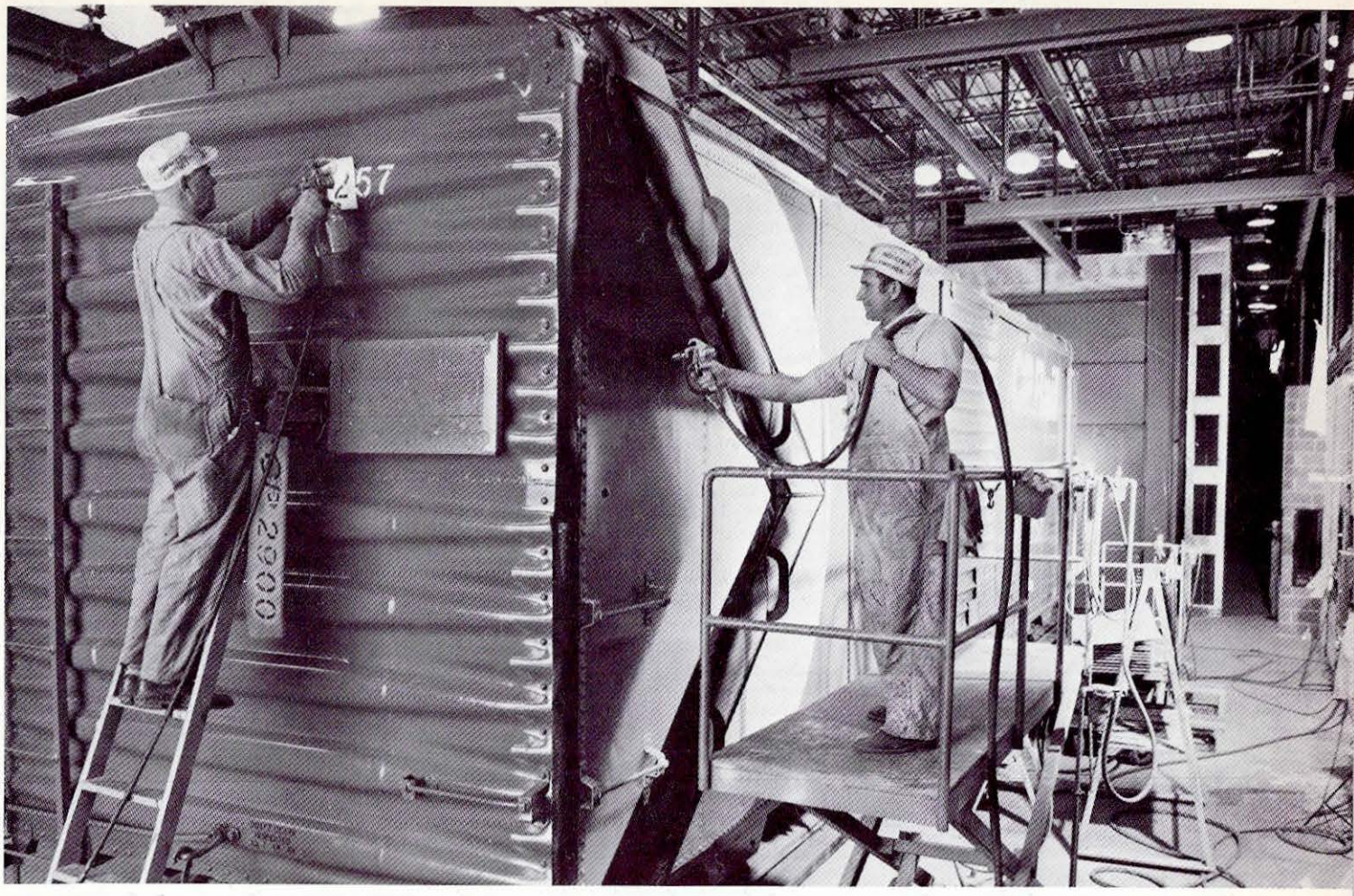
Black smoke is an indication that incomplete combustion is taking place in some part of the engine's cycle, and thus the engine designer has aimed to minimize it. A number of devices have been developed to measure the density of the emission, Hoffman added. Opacity, which is what some of the devices measure, is determined by comparing the amount of light transmitted through the smoke with the intensity of the light from the source. Federal regulations limit the opacity of smoke from highway diesel trucks to 20% opacity. Although no opacity meters have been fully developed to measure locomotive emissions with any reliability, one is available for trucks. The Ringelmann scale is the official rating system for the Bureau of Mines. Unfortunately, added Hoffman, many have equated Ringelmann Scale One, or 20% density, to 20% opacity, and this relationship definitely does not exist for internal combustion engines.

● **Charts not reliable.** The Ringelmann smoke charts are not reliable for charting smoke density of internal combustion engines, said Hoffman. However, five GE employees have been certified as smoke readers in a couple of states and "experience shows that these people can read smoke more accurately than some of the instruments available today." Both the AAR and the Engine Manufacturers Association are working on the development of opacity meters.

There is a definite relationship between fuels and emissions, reported the Bureau of Mines' Fleming. Also, changes in fuel density and in the fuel system itself will affect the carbon monoxide and smoke emissions of a diesel engine. The B of M has been involved in studies of the emissions from diesel engines for several years, mostly with trucks and underground vehicles. ■



Measurement and collection devices were inserted in unit exhaust stacks for the battery of tests. Here, a U.S. Public Health Service smoke meter, and other instruments, are in use at Chevron.



CP re-paints freight cars fast

Four steps in four hours and CP Rail has another freight car ready for service in its bright new paint scheme. This is the procedure in the newly-built $725,000 semi-automated paint facility at Weston Shops in Winnipeg, Man. For several years CP has been working to give the new look to its 82,000 freight cars, as well as to its motive power and passenger equipment.

With the new Weston facility in operation, the bright livery can go on approximately 5,500 freight cars annually. "The majority of cars done at Weston will be 'Action Red' with a black and white multimark logo," explains R. Bryant, mechanical project manager. "But we could easily change the prime color to do other types of cars if necessary." CP box cars, gondolas, flat cars and open-top coal cars get the red scheme, while freight cars for other purposes are identified with other paint combinations.

● **Six man crew.** The paint shop is a steel-frame and masonry building 330 feet long and with a floor area of 12,800 square feet. It is operated by a crew of six. Prior to its entry into the shop, each car is cleaned in preparation for the new exterior paint.

A dozen cars are assembled by a Trackmobile on the single track which enters the long, narrow shop. From this point, a "rabbit" car mover takes over, moving each car after uncoupling into the first position. Station 1 is a preheat oven where a temperature of 250 degrees can bring the metal of a car from 35 degrees below zero to 70 degrees above in 45 minutes. All moisture is also removed in the oven.

Cars are spaced about 85 feet apart as they are moved through the shop by the positioning system which is operated from a console in the shop control booth. The second spot is the pre-paint area where the car is checked for cleanliness and where a few difficult areas are painted manually with 8-foot pole guns.

● **Spray booth.** The car then moves into the third position, a paint spray booth where ten electrostatic spray guns paint the sides and ends with paint heated to 140 degrees. The electrostatic charge of 90,000 volts attracts the paint to the metal car, actually painting around corners such as back of ladders. The process assures a uniform paint coverage with a minimum of overspray. A balanced air system with vestibules at each end of the spray booth keeps overspray from going into the shop and keeps out unfiltered air.

Control of the car puller is based on the spray painting. When the leading end of the car enters the booth, a sonic beam is broken. The spray gun painting that end then moves from left to right and from the bottom of the car to the top. When there is no more car to point, the gun automatically moves out of the way and the rabbit moves the car forward, triggering the four guns on each side. The process continues until another beam actuates the painting of the trailing end of the car.

The car advances into the drying oven where 225 degree temperature completes the paint curing in 35 minutes. The painted car then moves to the fourth station where it is stencilled and has the CP logos applied. This is done using magnetic stencils and hand spray guns. Four men complete this job in 45 minutes. ■

(Continued from page 43)

counting operations; **Richard E. Holland,** manager of revenue accounting; **Richard G. Martinson,** assistant accounting manager-station accounting; **Frank A. Gozola,** assistant accounting manager-credit; **Harland R. Olson,** assistant accounting manager-divisions; **Curt E. Carlson,** assistant accounting manager-overcharge claims; **Roy F. Duprey,** assistant accounting manager-interline received. The Tax Department is not affected.

Bernard J. Wilkes, trainmaster, Eastern division, Stevens Point, Wis., appointed assistant superintendent, Shoreham Yard, Minneapolis. Mr. Wilkes' successor is **Paul L. Ingebretson,** assistant trainmaster, Fond du Lac, Wis. **William J. Cooke,** assistant trainmaster, becomes terminal trainmaster, Shoreham Yard. **Donald J. Hansen** named terminal trainmaster, Schiller Park, Ill.

SOUTHERN.—Fred W. Grove, track supervisor, Orangeburg, S.C., appointed trainmaster, Bristol Line, at Greeneville, Tenn., succeeding **Jack R. Willis,** transferred to the Alabama Division at Birmingham. **Thomas R. Jacobsen,** assistant cost analyst, appointed cost analyst, Marketing Department, Washington, D.C.

D. Henry Watts, senior salary analyst, named director of employment, Washington, D.C.

SOUTHERN PACIFIC.—Donald J. Russell, chairman, retired May 17, after a 52-year railroad career. He also retired as a director and member, executive committee.

C.M. Bill named senior assistant controller; **D.L. Praeger,** assistant controller; **T.A. Breed,** assistant controller (T&L Lines, Houston).

An Intermodal Traffic Department has been established to handle all domestic and international intermodal traffic. **Thomas A. Fante** named general manager of the the new organization, with offices in San Francisco and Houston.

UNION PACIFIC.—John R. Scogin, assistant traffic manager, San Francisco, named freight traffic manager, Omaha. **Nicholas J. Meis,** assistant traffic manager, Denver, succeeds Mr. Scogin, and in turn is succeeded by **Cecil L. Ferguson,** general traffic agent, Des Moines. Mr. Ferguson's successor is **Donald R. Petersen,** district manager of trailer traffic, Chicago.

Philip F. Brougham, assistant general storekeeper, named general storekeeper, Omaha. **E.A. Zaracki** appointed assistant general storekeeper, Omaha.

C. Barry Schaefer, assistant general counsel, New York, elected western general counsel, Omaha, Neb., succeeding **James H. Anderson,** vice president and western general counsel, who retired April 1. **William P. Higgins,** assistant western general counsel since March 1970, appointed general commerce counsel.

James R. Henderson named traffic manager, Washington, D.C.; **Richard T. Corson,** Kansas City, Mo. **Robert L. Christensen,** assistant freight traffic manager, Omaha, promoted to assistant traffic manager, Los Angeles. **Fred W. Howland, Jr.,** general freight agent, Omaha, succeeds Mr. Christensen, and in turn is succeeded by **Kim R. McFaddin,** research analyst, traffic department, Omaha.

Marion A. Scott appointed general mechanical engineer, Omaha. Mr. Scott, formerly western manager of railroad sales, **New York Air Brake Co.,** Chicago, succeeds **Harold Rees,** retired.

WESTERN MARYLAND.—Roy R. Gunderson, assistant vice president-engineering, Baltimore, has taken early retirement for personal reasons.

John H. McLaughlin, district coal traffic manager, New York, retired April 30, after more than 43 years of service.

Thomas J. Boyle, assistant manager, foreign commerce, retired May 31, after over 31 years of service.

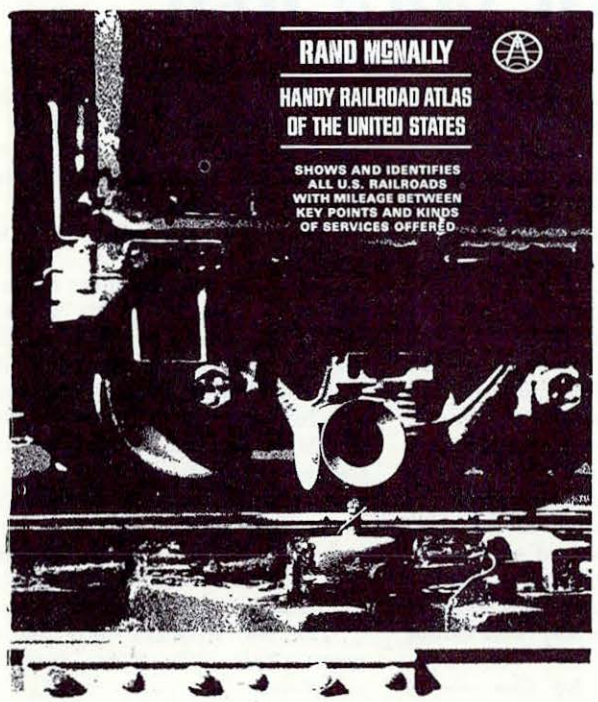
WESTERN PACIFIC.—Alexis P. Victors appointed market manager. He was formerly associated with **General Motors Corp.**

James A. Terhorst named superintendent, western division, Sacramento. Mr. Terhorst's jurisdiction includes mainline operations between San Francisco and the California-Nevada border and operations of the **Sacramento Northern** and **Tidewater Southern.** He was formerly division superintendent, **Penn Central,** Cincinnati.

SUPPLY TRADE

Frank P. Adler, chief mechanical officer, **Pullman Transport Leasing Co.,** has been elected vice president-engineering.

The Westinghouse Air Brake Co. Transportation Group will continue to have its headquarters in Pittsburgh under a reorganization



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announced by its parent corporation, **American-Standard.** WABCO's executive offices, now in Pittsburgh, will be moved to American' Standard's New York headquarters. **Lawrence E. Walkley,** president of WABCO and executive vice president of American-Standard, has requested, and has been granted early retirement.

Wix Corp., Gastonia, N.C., has appointed the **T.C. Johnson Co.,** Chagrin Falls, Ohio, as manufacturer's representative for Wix filter sales to railroads in the eastern and southeastern states. **Cliff Nelson,** Atlanta, Ga., and **John M. Ryan,** Bel Air, Md., will work with Mr. Johnson.

J.W. Dykes has been named manager of railroad applications, construction markets project, commercial development division, Chemical Department, **Phillips Petroleum Co.,** Bartlesville, Okla. Mr. Dykes will work with railroads to improve track beds through use of Phillips Petroset RB, a rock binding rubberizing emulsion.

CIC Corp. has completed acquisition of **A.A. Morrison Co., Inc. Julian L.S. Morrison** will continue as president at 120 Delaware Avenue, Buffalo, N.Y., under the new name of **CIC/A.A. Morrison, Inc.**

PPG Industries, Inc., Pittsburgh, has appointed **Howard Swink Advertising,** Marion, Ohio, as agency for its Coatings and Resins Division, Industrial Products, effective July 6.

Robert S. Hahn, executive vice president, **Moss-American, Inc.,** Oklahoma City, Okla., is now responsible for all operations in addition to sales. Reporting to Mr. Hahn: **W.D. James,** vice president-sales manager; **W.L. Winham,** vice president of production; and **W.J. Broussard,** vice president in charge of wood preserving plants. **H.R. Jekel, Jr.,** assistant vice president of railroad sales, and **W.H. Schmidt,** assistant vice president in charge of commercial sales, will report to Mr. James.

Deane L. Adams has joined the RPC Division of **Midland-Ross Corp.,** Cleveland, as sales manager for the Tami-Lift mobile straddle crane and allied equipment. Mr. Adams was formerly with the Bolens Division of FMC Corp.

John Perry, financial analyst, **Pullman Transport Leasing Co.,** has been elected controller, with headquarters in Chicago.

Kevin W. Sullivan has been named director of sales administration-public relations, **North American Car Corp.**

John Douglas Tickle has been appointed president and general manager, **Morrison Molded Fiber Glass Co.,** Bristol, Va. Former president **Robert S. Morrison,** has been appointed chairman of the board and remains chief executive officer.

M.W. Minear has been appointed sales engineer, Central District industrial sales, **GTE Lenkurt Incorporated,** at Chicago. Mr. Minear was associated with the **Chicago & North Western** in Chicago for 18 years.

William F. Steiner has been appointed president of **Carrier-Transicold Co.,** effective Aug. 1, succeeding **William C. Egan,** named

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Market Outlook

CAR LOADINGS

Loadings of revenue freight in the week ended May 27 totaled 533,663 cars, according to the Association of American Railroads. This was an increase of 10,288 cars, or 2.0%, compared with the previous week, and a decrease of 39,282 cars, or 6.9%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended May 27 are estimated at 15.9 billion, a decrease of 3.7% below the corresponding week of 1971.

REVENUE FREIGHT CARLOADINGS

Commodity	May 27 week	May 20 week
Grain	18,583	17,432
Farm products	11,031	11,336
Metallic ores	44,569	39,482
Coal	99,566	96,172
Crushed stone, gravel & sand	29,077	29,994
Nonmetallic minerals	10,662	9,817
Grain mill products	18,005	18,008
Food and kindred products	24,092	23,807
Primary forest products	24,506	24,535
Lumber & wood products (except furniture)	18,274	17,732
Pulp, paper & allied products	23,982	23,201
Chemicals & allied products	28,674	30,069
Petroleum products	9,048	8,990
Stone, clay & glass products	22,640	22,507
Coke	8,451	7,858
Metals & products	25,388	24,905
Motor vehicles & equipment	24,931	26,111
Waste & scrap materials	15,818	16,406
Forwarder & shipper assn. traffic	6,331	5,933
All other carloads	69,494	68,380
LCL traffic	541	529
Total cars loaded	**533,663**	**523,204**
Cumulative total, 21 weeks	1972	1971
	10,281,732	10,641,250
Estimated revenue ton-miles (billions) 21 weeks	308.1	307.0

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended May 20 totaled 25,426 cars (37.9% above the corresponding week last year, when loadings were affected by the two-day nationwide strike). Trailers and containers totaled 42,059 (up 31.8% over 1971). Cumulative volume for the first 20 weeks of 1972 is 486,170 cars (7.0% above last year) and 812,721 trailers or containers (10.7% above 1971). In addition to freight, 2,211 cars carrying 3,556 trailers or containers of mail and express traffic were handled by piggyback. Cumulative figures for the first 20 weeks of 1972 are 49,376 cars (down 25.4% from 1971) and 78,180 trailers or containers (down 20.5%).

IN CANADA

7 days ending	Tons of Revenue Freight	Cumulative Totals
May 14, 1972	4,070,274	72,227,310
May 14, 1971	4,522,838	69,083,340

FREIGHT-TRAIN CARS

● *Trailer Train.*—Ordered 280 89-ft, 4-in. cars as follows: from Bethlehem Steel, 100 all-purpose flat cars; from Pullman-Standard, 100 container flat cars and 50 low-level cars; from Amcar Division of ACF, 30 all-purpose flat cars. This brings to 842 the number of cars ordered by TTX since Jan. 1. As of May 31, TTX had 60,288 cars in service or on order.

● *Freight-car orders and deliveries.*—The following report has been released by the ARCI and the AAR:

DELIVERED

	Apr. 1972	Mar. 1972	Apr. 1971
Built new by carbuilders	4,135	4,351	4,431
Built new in R.R. shops	282	229	1,066
Built new—total	4,417	4,580	5,497
Rebuilt	80	239	367
TOTAL DELIVERED	**4,497**	**4,819**	**5,864**

ORDERED

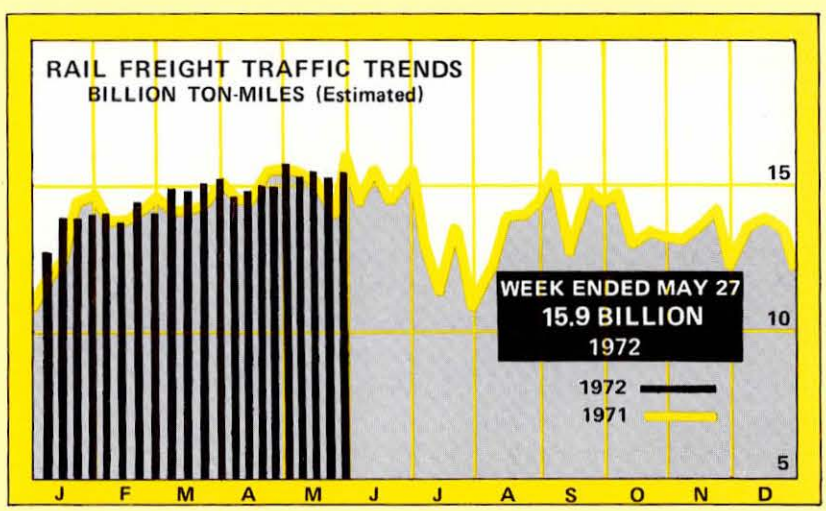
To be built new by carbuilders	2,062	3,462	3,782
To be built new in R.R. shops	650	200	325
To be built new—total	2,712	3,662	4,107
To be rebuilt	155	0	1,185
TOTAL ORDERED	**2,867**	**3,662**	**5,292**

ON ORDER AND UNDELIVERED

	May 1, 1972	Apr. 1, 1972	May 1, 1971
To be built new by carbuilders	11,966	14,079	19,059
To be built new in R.R. shops	4,881	4,513	4,504
To be built new—total	16,847	18,592	23,563
To be rebuilt	1,783	1,708	2,963
TOTAL ON ORDER	**18,630**	**20,300**	**26,526**

LOCOMOTIVES

● *Louisville & Nashville.*—Ordered 40 diesel-electric units from EMD at a cost of approximately $9.5 million. Delivery of 30 2,000-hp GP38 units will begin in September; delivery of 10 1,500-hp SW1500 units will begin in November.



Source: Association of American Railroads

president, Day & Night/Payne division of the corporation at La Puente, Calif.

Thomas R. Turbeville has been named director of marketing, **Farr Co.**, El Segundo, Calif.

Robert M. Dwyer, district sales manager, **Shippers Car Line division, ACF Industries**, St. Louis, has been transferred to the Midwest regional sales office, Chicago. **Robert H. Vaughn**, sales representative, Chicago, succeeds Mr. Dwyer.

Chester L. Fraker, president and general manager, **Bantam Division, Koehring Co.**, has been transferred to the **Koehring Division**, to succeed **Kensal R. Chandler**, transferred to Koehring's corporate office for later assignment. **Willis W. Fisher**, vice president of marketing, **Koehring Division**, replaces Mr. Fraker at **Bantam Division**.

Harry R. Carboni has been appointed to the new position of manager of marketing, **Brand-Rex Co.**, Willimantic, Conn. He was formerly administrative assistant to the president. **Joseph G. Merkwaz**, industry manager, business machine market, has been appointed Southeastern regional sales manager and will be succeeded by **George C. Graeber**.

Sam Klaye has been promoted to sales manager, eastern region of the United States, for **Ringsdorff Corp**, East McKeesport, Penna.

William R. Samuels, Jr., has been appointed national accounts manager, industrial products department, **Sun Oil Co.**, at Chicago, for special sales services to the fleet transportation, railroad and agricultural industries in the mid-west.

William F. Mullen has been appointed industry representative-transportation, **Rohm and Hass Company**, Philadelphia, Pa., succeeding **Richard C. Oglesby**, who has been granted disability leave.

Thomas M. Quinn, account manager, **E.I. Du Pont de Nemours & Company**, Cleveland, has been promoted to account manager, railway finishes, Philadelphia, succeeding **Malcolm McFarland**, who has chosen early retirement, after servicing the railway industry for Du Pont for 30 years. **Peter J. Rigby**, manager Du Pont finishes, Hawaii, has been promoted to account manager, Cleveland, succeeding Mr. Quinn.

Lionel V. Topaz has been appointed Assistant Public Utility Commissioner of Oregon for the rail, air and marine field.

Richard H. Jones, product supervisor, railroad products sales, **Bethlehem Steel Corp.**, Baltimore, Md., has been appointed assistant manager of railroad products sales, Bethlehem, Pa.

Paul H. Moore has been appointed vice president-marketing, **The Official Guide of the Railways**, published by the **National Railway Publication Co.**, New York.

Safetran Systems Corp., Louisville, Ky., has announced the following promotions: **Phillip E. Pierce**, manager, North Central Region; **Darrell E. Emery**, manager, Eastern Region, and **Noel B. Smith**, manager, Western Region. **Leland G. Phillips**, joins Safetran as manager, South Central Region. He was formerly western sales manager, WABCO.

James L. Watt has been elected executive vice president and director, **Jackson Corp.**, Lansing, Ill. Prior to joining Jackson, Mr. Watt was president of a valve manufacturing company. **Joseph H. Bush** has been appointed vice president, with responsibility for new equipment sales and marketing. **Glenn H. Haywood** has been named vice president, with responsibility for spare parts sales, service engineering and customer education programs.

TRANSIT

A National Technical Advisory Committee has been formed to counsel the **Regional Transportation District** in designing and planning a transportation system for a seven-county area surrounding metropolitan Denver. Serving on the committee are: **Dr. John A. Bailey**, director, Transportation Center at Northwestern University; **B.R. Stokes**, general manager, San Francisco Bay Area Transit District; **Alan C. Bingham**, general manager of AC Transit in Oakland, Calif.; **Henry L. Stuart**, director of development, Metropolitan Atlanta Rapid Transit Authority; and **William A. Baker**, consultant to the cities of Los Angeles and Palm Springs, Calif.

Thomas J. Hickey has been appointed public relations manager, **Southeastern Pennsylvania Transportation Authority**, Philadelphia, succeeding **George L. Hamilton**, who retired May 26.

William P. Maynard, president, **Atlanta Transit System, Inc.**, has been appointed assistant general manager of transit operations, **Metropolitan Atlanta Rapid Transit Authority**. Mr. Maynard has been directing transit operations since MARTA purchased ATS in February. **Morris J. Dillard**, community relations director for MARTA, has been promoted to a new position as executive assistant to the general manager.

Edward W. Peterson, manager of construction, **San Francisco Bay Area Rapid Transit System**, has been named manager of construction, **Power and Industrial Division, Bechtel Corp.**

Frank T. Berry, general superintendent rapid transit, **New York City Transit Authority**, has been promoted to executive officer, operations and maintenance.

Donald G. Paquette has been named manager, marketing services, **International Nickel Co., Inc.**, with responsisibility for market research and forecasting; sales promotion and advertising; and certain administrative functions. **William S. Mounce** has been appointed manager, commercial development. **John J. Moran, Jr.**, has been named assistant manager.

Howard W. Hinton has joined the staff of **LFM-Atchison Division, Rockwell Manufacturing Co.** as transportation sales engineer, Atchison, Kan. He will serve the transit and commuter rail market.

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Anti-trust immunity, under attack by DOT, defended by rate men

One of the less-publicized aspects of DOT's proposed modernization of transport regulation—change in Section 5a of the Interstate Commerce Act—is beginning to draw fire from railroad rate officers.

J.M. Souby, Jr., president of the Western Railroad Association and chairman of the Executive Committee-Western Railroad Traffic Association, charges that DOT's plan "would emasculate Section 5a. . .by outlawing any joint consideration of adjustments involving rates via single line routes." This, he warns, "would cause grave financial problems for a substantial number of weaker carriers and would cause a high degree of chaos in surface transportation. . .I feel very strongly that something of this kind might be just the thing that would push the transportation industry under the highest degree of regulation, namely, nationalization. Rather than create an open market, it would produce the highest-known form of monopoly, government ownership."

Souby notes that since the 1948 passage of the Reed-Bulwinkle Act—which provided antitrust immunity for transportation rate conferences—there have been attacks on this immunity "but none were taken very seriously, at least by the railroad industry, until the current proposal in the DOT bill. The extent to which the Administration is really putting its weight behind the bill is not clear. But we are genuinely apprehensive simply because DOT, officially at least, seems to favor the 5a limitations and also because some of our friends in the National Industrial Traffic League appear to be pushing the proposed amendments."

● **Pro and con.** In comments at a recent Western Traffic Conference meeting in California, Souby cited DOT justifications for the 5a change and tacked on his own observations:

DOT: "These rate bureaus, a product of an earlier, more volatile economic climate, have for the most part outgrown their usefulness."

Souby: "The climate may have been more volatile in earlier days, but I have been on the scene since about 1940 and I cannot recall any greater volatility than we have today. Certainly there was no greater volatility in 1948 when Section 5a was enacted."

DOT: "While the intent was to provide stability in transportation pricing, rate bureaus were not designed to prohibit all independent action by individual carriers."

Souby: "Anyone who has participated actively in rate-making, either on the carrier side or on the shipper side, knows full well that the right of independent action is extensively invoked. In the West alone, including IFA territory, 3,140 notices of independent action were filed by members of the various rate organizations in 1970. Notices were being issued at an even greater rate in the first six months of 1971, with 2,495 notices received."

DOT: "Under the pressure of increased inter- and intra-modal competition, the rate bureaus' authority has increasingly discouraged flexibility and innovation in carrier pricing and service."

Souby: "I have seen absolutely no evidence of any such discouragement. On the contrary, I have seen a great deal of innovation in pricing encouraged and carried out under the procedures in Section 5a conferences and by carriers acting on their own initiative. Multiple-car rates, unit-train rates and many incentive rates have been established not only inde-

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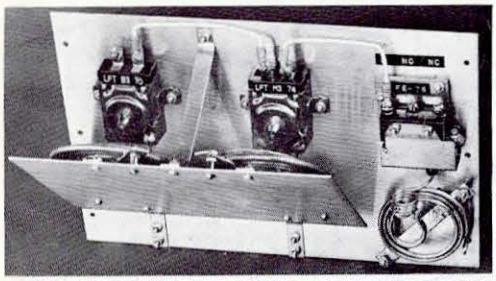

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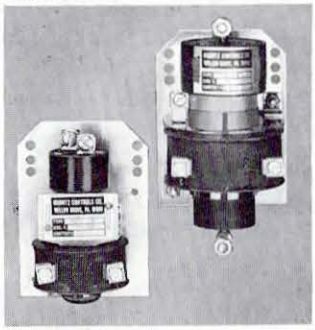

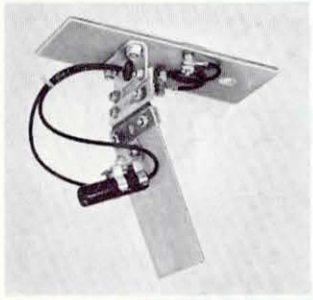

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"The DOT amendments would create an atmosphere of coercive rate-making"

pendently outside of the bureaus but also in the bureaus themselves. While discussions are had as to the economic merits of a given adjustment and questions of opinion are voiced—occasionally in loud voices—I have never in my experience seen any coercion against a railroad's taking innovative action which it believes to be in its own best interest."

DOT: ". . .to the extent that increased reliance upon competitive forces is deemed desirable, the retention of Section 5a in its present form would be inconsistent with that policy objective. Inasmuch as other sections of the bill are designed to lessen regulatory supervision over rate-making, a principal justification for collective carrier pricing is removed."

Souby: "Looking over the entire bill, I find that a great number of the regulatory provisions in the Interstate Commerce Act are not even touched upon. I feel that there is no significant lessening of regulatory supervision. On the other hand, I feel that the ability of the Interstate Commerce Commission to regulate properly would be seriously impaired, without the activity of the rate bureaus which assist the Commission in its handling of a great many of the matters that are now coming before it. I think the Commission is well aware of this. I also think that this bill would generate far more litigation in the courts and before the regulatory agencies, not only for alleged violations of the antitrust laws but also for violations of various prohibitions in the Interstate Commerce Act itself."

● **Impact on customers.** Souby also called attention to the possible effects of DOT's proposal on shippers:

"One of the factors which is little understood—probably because only those of us who are close to rate-bureau performance are familiar with it—is the benefit which rebounds to the small shipper as distinguished from the large corporations. As I understand the proposal of DOT, shippers would be encouraged to negotiate with individual lines rather than submitting matters to a rate bureau of docketing and handling to conclusion. It seems to me that this type of handling would greatly favor the large shippers with huge volumes of business to use as leverage in conducting rate negotiations. Rate-making in our association meetings discourages the use of economic coercion from any source and permits discussion of the various elements of rate-making, including the interests of small shippers individually and in the aggregate as well as the interests of those individual firms which have tremendous tonnages to offer. Many, many times have I heard discussions in our meetings relating to the effects of a given rate adjustment on the little fellows.

"The small shipper, also through the activities of the rate organizations, is furnished with advance notices of adjustments sought by large competitors and others. . .Small shippers are given an opportunity to participate in the negotiations and to make their views known to the carriers before action is taken.

"Of course, the large shipper can, under the present setup, go to an individual road and demand independent action. Sometimes this is done, and concessions are sometimes granted. However, in the proposed system, a railroad approached would not even be given the privilege of conferring with its connections and other shippers under Commission-approved procedures in order to evaluate the consequences of independent action.

"Obviously, there would be far more incidents of irresponsible rate-making, with dire consequences not only to competing carriers but also to groups of shippers. In my opinion, the DOT amendments would create an atmosphere of coercive rate-making in which only the economic giants would benefit." ■

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Viewpoint

Materials managers put on a good show

By almost any measure, you have to call the first annual meeting of the Transportation Materials Management Forum a success. The attendance—a final count of about 280—topped expectations by roughly 100. The program had both "names" and substance. The topics up for discussion, both in general sessions and in workshops, were well worth a spot on a purchasing and materials-management program. And, of course, there was the camaraderie that you get anytime you put together a group that includes three or four suppliers for every railroad man.

What there *wasn't* was the "T" in TMMF. The Forum's first-annual was a railroad show all the way—and roll-call would have sounded much like roll-call at meetings of the old AAR P&S or P&MM Divisions. But, there were reasons for that—one being that in the time available for organizing the first-annual there just wasn't the time to roust-out the purchasing and materials-management people from the other modes of transportation (where the P&MM function is less easy to pin down and less group-organized than in railroading). Hopefully, TMMF's second-annual will spread things out, with audience and program representation from motor carriers and airlines and so forth.

Even as a railroad solo, however, TMMF had merit—and nowhere more so than in an idea-interchange between purchasing and materials-management officers and top people from the using departments. Presentations by W.W. Simpson, vice president-engineering of Southern, and C.O. Wines, superintendent-equipment and budgets of Louisville & Nashville, complemented each other perfectly—and left absolutely no doubt as to the interdependence of buyers, materials managers and users.

Simpson and Wines talked about such things as (1) the need for P&MM assistance in short- and long-term planning, (2) the need for improved communication between departments, (3) the desirability of conscious promotion of competition among vendors, and (4) the vital need for both the using department and the purchasing department to be fully informed about products and product-service before buying decisions can be intelligently made.

GETTING THE BEST FOR THE MONEY

None of these points should be surprising. At their best, buying and using departments have always worked somewhat like the U.S. government (at its best), with checks and balances designed to provide a railroad with the best/most combination for its money. But, even if the points aren't surprising, they do bear repeating—and repeating and repeating. At no time, perhaps, have railroads needed more (in quality and, possibility, quantity)—and had less with which to buy it.

For TMMF's initial success, credit its officer/organizers—MoPac's Harold Hoffmeister, UP's Max Hower, N&W's Ed Gentsch, RI's John Burnett, C&NW's Sam Van Arsdell and RSMA's Grant Vietsch. Credit also the railroads and the suppliers that thought enough of the venture to be there. Credit finally the railroad business itself—a $3.3-billion-plus annual market, and one that's a sure bet to grow.

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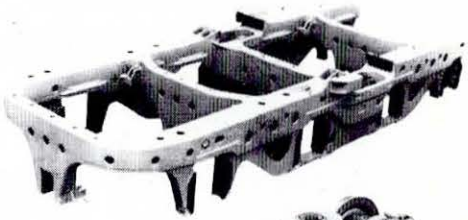

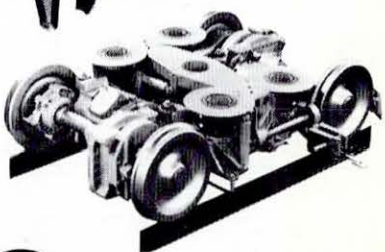

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